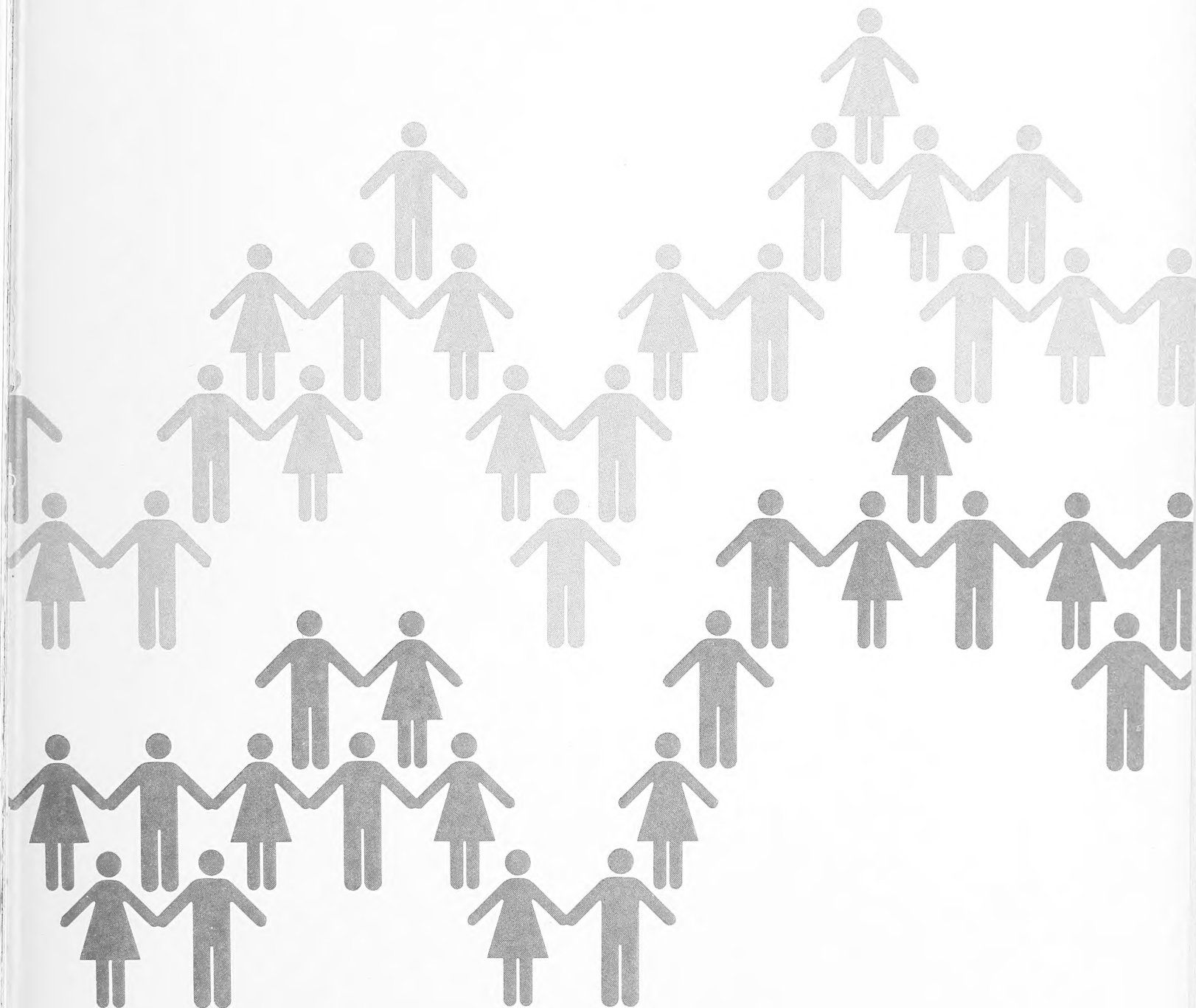# Health Status of Minorities and Low Income Groups

Health Status | of Minorities and | Low Income Groups

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Foreword

One of the responsibilities of the Health Resources and Services Administration is to provide leadership with regard to issues of access, equity, and quality of health care for the Nation.

In pursuit of this overall mission, we are proud to contribute this work toward greater understanding of the health status of minorities and persons with low income, for use by health professionals in addressing these important health issues.

I would like to extend special thanks to Dr. Clay E. Simpson, Jr., Director, Division of Disadvantaged Assistance, and his staff for his leadership in focusing our attention on these issues.

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A. Purpose

The Division of Disadvantaged Assistance (DDA), Bureau of Health Professions, Health Resources and Services Administration, has as its mission the initiation and conduct of programs which promote and assure equity in access to health resources. The Division administers the Health Careers Opportunity Grant Program (HCOP); compiles, analyzes, and disseminates data on the health status of the disadvantaged; and coordinates Special Presidential, Departmental, and other initiatives for enhancing health resources opportunities for the disadvantaged. The DDA has a constant need for sources of data which demonstrate the disparities that exist between the disadvantaged and advantaged segments of our society, as well as information on the effectiveness of programs aimed at reducing those disparities.

The Office of Health Resources Opportunity (OHRO) was the predecessor organization to the DDA. When the various organizations in the then Health Resources Administration in the mid-1970's found that they were in need of large amounts of such data on a continuing basis, they asked OHRO to produce those data organized in a systematic manner.

In 1977, a contract was let to Centers for Health, Education, and Social Systems Studies (CHESS) to produce the first and original edition of *Health Status of Minorities and Low-Income Groups.* That volume filled the need for an aggregation of data and an analysis of group differentials and trends. But that original work has now become outdated; most of its chapters included data no more recent than 1974.

For this and other reasons, it was decided that a second edition of increased scope and greater definition was needed, one that would provide more recent data and more recent trend effects. Thus, CHESS has produced this second edition, appropriately revised and updated.

It is impossible to anticipate all the ways in which a large pool of data, such as is provided in this report, may be used. Each of the segments of the government must make decisions on policy issues, conceptualize programmatic intervention programs, and evaluate programmatic efforts. To do so, each must have data of the sort compiled here. Many people outside of government are involved in the delivery of health care services or in the analysis, evaluation, and research of the health care system. The educational community also needs reference and text works to assist in its pedagogical process. The CHESS staff, mindful of all these potential users, has tried to prepare a document that can be used by such a diverse audience and for an extremely diverse set of purposes.

Many types of data, however, are very difficult to use in raw form. Social demographic data can lead to a wide variety of interpretations. Health system data are particularly difficult to construe without a comprehensive understanding of all of the contributing factors. Because of these complexities, the CHESS staff has attempted, both through the selection of the data presented and through textual interpretations of those data, to present some insight into what factors may be responsible for observed relationships or differences between comparison groups. These interpretations are especially necessary because it is beyond the scope of this report to present the individual methodologies used for gathering the data for each of the studies cited. For sophisticated readers who wish to interpret the data themselves, this source book is meant as an initial reference work. Before these data are further used, the original data sources should be reviewed for an understanding of the data collection methodologies.

B. Methodology and Sources

One of the first tasks of the project to produce this second edition was for the contractor to meet with DDA staff members for the purpose of discussing (1) the contents of the second edition; (2) definitions of "the disadvantaged"; (3) coordination with other DDA projects; (4) access to data and data sources; and, most importantly, (5) any thoughts or constraints that would cause a redirection of the project. The consensus was that the project to produce the second edition would be carried out in essentially the same fashion as the project for producing the original edition, including retaining the chapter topics and the general format of the chapters.

The CHESS library was greatly expanded with new works on relevant topics, and then culled for documents containing information on each of the chapter topics. Extensive searches were also conducted in the National Library of Medicine; the libraries of the Graduate School of Public Health, the School of Medicine, and the general (Hillman) library at the University of Pittsburgh; and the Carnegie Library of Pittsburgh. The publication branches within several departments of the government were also combed for reference works. Discussions were held with a number of key individuals, governmental and nongovernmental, concerning both published and unpublished sources of data. In addition, letters soliciting information were sent to a select group of organizations. Probably the most significant omission from this work is the raw data contained in the data banks from which much of the included data were taken. Had it been readily available, a number of additional, meaningful analyses could have been made on data disaggregated by the demographic variable of interest. Regrettably, it was beyond the scope of this project to have special data tabulations made on those raw data banks.

In gathering information for the first edition, a large number of health-related organizations were solicited for data relevant to the

topics, subpopulations, specific diseases, health problems, medical services, etc., discussed in these chapters. Those organizations that responded with usable data were contacted again for information for inclusion in this second edition, as were some institutions that were brought to our attention through the literature or by knowledgeable personnel in the health arena. These organizations are listed below (including those that did not respond):

Allegheny County Health Department
American Academy of Optometry
American Association of Bioanalysts
American Board of Colon and Rectal Surgery
American Board of Orthopaedic Surgery, Inc.
American Board of Physical Medicine and Rehabilitation
American Board of Radiology
American Board of Surgery, Inc.
American Cancer Society— National Office
American Cancer Society— Pittsburgh Office
American Diabetes Association, Inc.
American Heart Association—Western Chapter
American Hospital Association
American Medical Association
American Medical Record Association
American Podiatry Association
American Speech and Hearing Association
Baltimore City Health Department—Vital Statistics

City and County of San Francisco—Department of Public Health
College of Physicians & Surgeons of Columbia University—Center for Population and Family Health
Institute for Social Research—The University of Michigan
Inter-University Consortium for Political and Social Research
John Wiley Publications
Medical Care and Research Foundation
Metropolitan Life Insurance Co.
National Association for Retarded Citizens
New York Medical College— Community & Preventive Medicine
Rand Corporation
Research Triangle Institute
Sage Publications
State of California— Department of Health
State of New York— Department of Health
SysteMetrics, Inc.
The American Board of Neurological Surgery
The American National Red Cross
The Permanente Medical Group—Division of Preventive Medicine
The Travelers Insurance Companies
Tufts University, School of Nutrition
Westview Press

Where appropriate, relevant data that were received from these organizations have been included in the text. As the data came in, they were organized by topic and cross-referenced to other related or tangential topics.

C. Definitional Issues

A number of terms with which the CHESS staff had to deal have varying definitions depending on the usage. In this section, both the difficulties in defining some of the more important of these terms and the definitions employed throughout the report will be explored.

1. Disadvantaged

Although there exists within our populace a series of groups that are disadvantaged in a way that deserves our national attention, the concept of "the disadvantaged" is itself quite vague. One of the reasons for this vagueness is that the groups comprising this cluster differ significantly from one another in quite a few respects, including how and why they are disadvantaged. It is unnecessary for us to try to explain through sociological theory who is disadvantaged and why they are disadvantaged. The important thing is that large amounts of data are available for describing health status, but much of it does not reflect social disadvantagedness. To be pragmatic, it makes more sense for us to adopt definitions that can be supported by the data available.

Generally, six variables have been used in the analyses throughout the book. These variables are income, education, sex, population density (in a few cases, geographical region), age, and membership in a racial/ethnic minority group. Not every variable is presented in all data sets. Except for sex, each variable presented certain complexities in its definition as well as in the interpretation of its effect on the health status

measurements of concern. In addition, differential age distributions within income levels, as well as differential distributions of both age and income within racial groups, act as confounding variables in comparisons between income groups and racial groups. Some of the caveats associated with data interpretation are explored further in the paragraphs below.

2. Income

We live in a socio-economic reality that requires people to purchase health care services. At our lower income levels, persons cannot afford health care services. The Medicaid program was initiated to provide some subsidies for these services to the people in the lower income brackets. This program has not eradicated medical indigency, however, since some medical services are not covered. Also, the family income requirements for participation in that program are such that a large number of people needing some subsidy cannot be beneficiaries of the program.

Table 1 contains the percentage distribution of families by income for 1975 and 1980. Both years are included to allow the reader to evaluate changes and lack of changes between those two years. To facilitate this comparison, income level is in constant 1981 dollars. The table uses the income categories commonly found in health status data, with family income separated into eight groups. Median income dollars are also included. For 1980, Spanish origin (Hispanics) is included as a

separate ethnic grouping. Rough comparisons can be made, however, between the 1975 and 1980 data, since Hispanics are predominantly white. (Although the footnote to that table states that persons of Spanish origin can be of any race, the races of Spanish origin are usually identified as 95 percent white, 3 percent black, and 2 percent other).

Tables 2, 3, and 4 contain some disaggregations of the poverty population. From these tables it can be seen that a far greater proportion of blacks and Hispanics are clustered below poverty levels than (a) whites, (b) those classed as unrelated individuals, and (c) those living in nonmetropolitan areas.

Table 3 reports the status of the elderly with respect to the poverty level in both 1975 and 1980. In these years, more than 15 percent of those aged 65 and above were indigent, according to the Census Bureau's poverty level definition. Within this table, some subgroups of those over 65 have a particularly large percentage of persons financially distressed within their population: blacks, Hispanics, and those classed as unrelated individuals.

One bias in these data comes from those who are in a *transient* low income state: those persons who desire employment but are temporarily unemployed, and students. Since neither of these groups necessarily shares medical indigency conditions with others in their income brackets, some distortion of the data results.

3. Education Level

Although the lore of our country is replete with Horatio Alger stories, it is true that there is a reasonably strong correlation between educational attainment and *advantagedness.* Some of the *advantagedness* that can affect health status is composed of three elements: the income to purchase health care services, the knowledge of which services to purchase, and the knowledge of how to use the services.

Table 5 contains a distribution of the nation's adult population by educational attainment. A large component of the population who have not completed at least an eighth grade education consists of the elderly, for whom such education was not common, and for whom education and income were not necessarily correlated during their earlier life. Much of this is changing, however, as that large early-century mass of immigrants is dying off. In Table 5, note the dramatic changes between 1960 and 1980 in the proportion of the population completing only an eighth grade education (17.5 percent in 1960, decreasing to 13.4 in 1970, and further decreasing to 8.2 percent in 1980). Even though we as a nation rank high in terms of the levels of educational attainment achieved by our populace, there remains a distinct difference in the health status of those at the various educational levels.

4. Population Density

Whenever the issue of insufficient health care resources has been raised, the response is usually that our country has sufficient resources, but that those resources are poorly dispersed geographically. Health care personnel and health care facilities are concentrated in those areas with the greatest population densities. Thus, this places some people at a disadvantage: those who, sufficient in income and educational level, happen to reside in an area of limited resources.

The problems in dealing with the definitions of population density have been aptly described in an American Hospital Association publication as quoted below, with information updated where necessary. The author's changes or additions are indicated by brackets.

It is difficult to draw a precise line separating metropolitan and nonmetropolitan regions, inasmuch as metropolitan areas can be defined not only by the number of residents, but also by the density of population and the proximity, accessibility, and even urban character of the facilities. The U.S. Bureau of the Census employs three different classification methods for describing the distribution of the population: metropolitan-nonmetropolitan, urban-rural, and farm-nonfarm. The development and usage of these terms are discussed below. Metropolitan-nonmetropolitan is the classification most frequently used in the tables [throughout the chapters of this book].

Metropolitan-Nonmetropolitan

This classification is based on the definition of Standard Metropolitan Statistical Areas (SMSAs) adopted by the U.S. Office of Management and Budget in 1980. They issue amendments to update this information when changes to SMSAs definitions are made. Except in New England, an SMSA consists of a county containing at least one city of 50,000 inhabitants and any contiguous counties that are determined to be metropolitan in character and socially and economically integrated with the central city. [An urbanized area of at least 50,000 inhabitants], when densely settled, contiguous places included, may also serve as the basis for an SMSA, provided that the county or counties in which the city is located has a total population of at least [100,000]. In New England, SMSA designations are based upon cities and towns rather than counties. As of [June 30, 1981, 323] SMSAs had been officially designated by the Office of Management and Budget. In the tables [presented in the following chapters], the category 'Metropolitan' always refers to the areas designated as SMSAs, and 'Nonmetropolitan' represents all other areas. Although all the major metropolitan regions of the United States and many other cities and large towns are not included in SMSAs, Standard Metropolitan Statistical

Areas neither include all of the country's urban population nor exclude all of the rural and farm population. The use of counties as the basis for SMSAs is advantageous in the collection of statistics, but diminishes the accuracy of the distinction between urban and nonurban areas. [According to the 1980 census definition, the urban population comprises all persons living in (a) places of 2,500 or more inhabitants incorporated as cities, villages, boroughs (except in Alaska and New York), and towns (except in the New England states, New York, and Wisconsin), but excluding those persons living in the rural portions of extended cities (places with low population density in one or more large parts of their area); (b) census designated places (previously termed unincorporated) of 2,500 or more inhabitants; and (c) other territory, incorporated or unincorporated, included in urbanized areas. An urbanized area consists of a central city or a central core, together with contiguous closely settled territory that combined have a total population of at least 50,000. In all definitions, the population not classified as urban constitutes the rural population (2, p. 3)].

Farm-Nonfarm

In order to provide information on the farm population of the United States, the Bureau of the Census also makes a distinction between farm and nonfarm residence. The farm population consists of all persons living on farms in rural areas. This includes all land on which agricultural operations are conducted from which $1,000 or more of agricultural products were, or potentially could be, sold during the year (2, p. 648). By this definition, in 1980, only 2.7 percent of all Americans lived on farms. Since the farm population is often a group of special interest when persons living outside metropolitan areas are being considered, information available on the nonmetropolitan population frequently is divided between persons living on farms and persons living in other nonmetropolitan areas. (3, p. 6)

"Substantial variation exists in the availability of health resources among [nonmetropolitan-semirural areas, nonmetropolitan-rural areas, and metropolitan areas]. In 1977 (the midpoint of the period covered by National Health Interview Survey data), the number of patient care physicians per 100,000 population ranged from 170 in metropolitan areas to 99 in semirural areas to 56 in rural areas. The variation in availability of board certified specialists was even greater. Much less variation existed in hospital beds per 1,000 population—5.0 in metropolitan and semirural areas and 4.1 in rural areas, according to 1976 data.

"The characteristics of physician practices also differ between metropolitan and nonmetropolitan areas. Results from two different surveys of physicians conducted in 1975 show that physicians practicing in nonmetropolitan areas worked longer hours and saw considerably more patients per week than those in metropolitan areas. Other differences between metropolitan and nonmetropolitan physicians are complex with no clear-cut implications in terms of access to care (Bureau of Health Manpower, 1980)." (4, p. 55)

5. Age

Statistics on the age distribution and characteristics of the U.S. population need to be examined as they relate to other characteristics within the health care system. For the tables and figures presented throughout this book, age-adjusted data were used where possible to eliminate the bias associated with age distribution factors. Population subgroups of particular interest are the very young and the elderly. Both of these groups place a high demand on the health system, although usually for entirely different reasons: the very young for prevention, the elderly for curative, palliative, and restorative medical services. Table 6 presents a percentage breakdown of the 1970 and 1980 total population according to age groups comparable to those used within most of the tables and figures in this book.

The elderly (those 65 and over) comprised 9.8 percent of the total population in 1970, increasing to 11.3 percent in 1980. This group will continue to grow in size, making it important to explore the less expensive and more available alternatives for caring for the aged. Those under 5 years of age made up 8.4 percent of the population in 1970 and 7.2 percent in 1980. This age group will increase for a time due to the large number of women who will be in their childbearing years for the next decade. The projection is, however, that by the year 2000 the rate of natural increase will reach an historic low. Thus this young age group, unlike the elderly age group, will begin to show a significant decrease in size.

Racial minorities are not age distributed in the same proportions as are whites. In 1980, 50 percent more of the white population was in the 65-and-over age group than there were in the black population, and over 100 percent more than in the American Native and Hispanic populations. Blacks, Hispanics, and the American Native group have a younger age distribution than whites. The younger age distributions of these minorities place them at a lower risk of the severe and debilitating morbidity associated with advanced age.

6. Racial/Ethnic Minorities

This is one of the more difficult demographic categories with which to deal, since there is no simple scheme for classifying the category's subgroups. For the purpose of discussion in this book, racial minorities are defined as black Americans, Hispanics, Native Americans, and persons whose origins

are the Pacific Islands and Asia. Most of the health status data that are available are disaggregated by racial minorities into white and nonwhite subgroups. All of the above minorities are normally included in nonwhite subgroups. Such clustering can lead to significant misperceptions, for the following reasons. (a) American blacks dominate the numbers in the nonwhite group. In 1981, 13.8 percent of the population was nonwhite; blacks made up 11.7 percent of the population, making them at that time the largest racial minority group in the United States. (b) The term "Native American" includes those frequently referred to as American Indians, Eskimos, and Aleuts from Alaska and neighboring islands. The American Indians are comprised of extremely diverse subgroups, some of whom are more like non-Indians in their mode of life than they are like each other. American Indians, of course, have very dissimilar backgrounds and ways of life from the Eskimos and Aleuts. (c) Similarly, the people grouped together as the Asia/ Pacific minority group are extremely different from each other. Because of their small numbers, separate statistics on them are infrequently available.

Of the ethnic minorities, the largest group by far is that referred to as Spanish American or Hispanics. This group, constituting approximately 6.4 percent of the 1980 U.S. population, can be

further divided into subgroups based on country of origin. This group includes whites, nonwhites of black and Indian origins, and many people of mixed racial parentage. The only things that the subgroups have in common are that (a) they come from countries that were once under Spanish dominion, and (b) most of them are still Spanish speaking (first or second language). The largest subgroup of this cluster is the Mexican Americans; Puerto Ricans and Cubans represent the second and third largest subgroups. The Mexican Americans congregate mostly in the agricultural and urban areas of the Southwest, the Puerto Ricans in the large cities of the North (particularly in New York City), and the Cubans in southern Florida.

In writing about these groups, certain difficulties arise in trying to be both definitive and concise. For example, we have come across data that are disaggregated by white and "All Other Races"; the "All Other Races" category was further subdivided into black and "All Others." We have found it necessary to coin terms not usually used in demography so that the reader can comprehend the subgroups under consideration. We have used, therefore, the prefix "non" to refer to comparison groups because of its perceptual simplicity. Just as other authors have used "nonpoor" to refer to those who are not in the poor group, but all of whom are not "rich," we have referred to the nonwhites, nonblacks,

non-Indians, and non-Hispanics when comparing them to the whites, blacks, Indians, and Hispanics, respectively, because we believe that type of taxonomy will help our readers follow the discussions.

Any attempts to improve the health of the nation, as well as the health of the disadvantaged, would be aided if those who generate health data could provide racial/ethnic breakdowns. The National Center for Health Statistics publishes the vast majority of health measures by racial categories. Some of the organizations that publish important data that are not disaggregated by any racial/ethnic distributions are (a) the National Safety Council in its annual publication, *Accident Facts,* (b) the Center for Disease Control in its annual publication, *Sexually Transmitted Diseases,* and (c) the Department of Labor in any of its publications data pertaining to accidents and injuries. Accidents and sexually transmitted diseases are major causes of morbidity and mortality. The data published by these organizations are substantial and useful. Their usefulness to both researchers and policymakers, however, would be greatly enhanced by the inclusion of racial/ethnic distributions.

D. Interpretational Issues
1. Interaction Between the Independent Variables

As discussed above, there are some relationships between the variables of interest. That is, a lesser proportion of the elderly group is

composed of blacks, and a larger proportion of the female group is composed of the elderly. There are other important relationships, and these are being reviewed below since they represent confoundings of the data to be presented. These confoundings must be taken into consideration when interpreting the data.
(a) *Members of racial and ethnic minorities tend to live in metropolitan areas.*

In 1980, 11.7 percent of the U.S. population was black, and 81.1 percent of the blacks lived in metropolitan areas. In the same year, 6.4 percent of the total U.S. population was of Spanish origin and 87.6 percent of them lived in metropolitan areas. These proportions may be compared to the 75.6 percent of the total population who lived in metropolitan areas in that year.
(b) *Members of racial/ethnic minorities tend to be lower incomed than the general population.*

Of the 1980 population classified by the U.S. Bureau of the Census as being below the poverty level, 32.5 percent were black (compared with their 11.7 percent proportion in the population), and 25.7 percent were of Spanish origin (compared with their 6.4 percent proportion in the population).
(c) *Members of the racial/ethnic minorities tend to be less educated than the general population.*

Table 5 depicts the educational levels for whites, blacks, and Hispanics. As can be seen, whites in 1980 differed from blacks by only 0.5 in median school years

completed. There was a 1.8 median year spread, however, between whites and Hispanics. The distributions of educational attainment are negatively skewed for both of these minority groups. Note that in 1980, for example, those who had completed 7 or less years of education comprised 8.0 percent of the white population, 20.3 percent of the black population, and 31.8 percent of the Hispanic population. Thus these racial/ethnic groups are more heavily represented in the less educated group. Note also, however, that in the 20 years represented in Table 5, that the blacks have narrowed the educational gap, from a 2.9-year spread in 1960 down to the 0.5-year spread in 1980. This narrowing represents a profound change in the educational level of blacks in its own right, but even more so because during those 20 years white educational levels were themselves increasing by 1.6 median years!

In summary, the racial/ethnic minorities tend to live in metropolitan areas where health care resources are more plentiful. They do not have as many persons in the elderly group, where chronic illness and low income are more prevalent, as do whites. The racial/ethnic minorities are more poorly educated and have lower incomes than whites. Where these socioeconomic factors affect health status, a differential in health status between them and their white counterparts can be expected.

2. Age Adjustment

Since prevalence rates, and particularly death rates, vary with age, it is important to consider the age distributions of the groups that are being compared. Ideally, one would compare prevalence and death rates for each age group to remove the impact of age when comparing racial or other differences. In the case of a number of health status measures, published data do take into account the different age distributions of the comparison groups by calculating age-adjusted rates.

These age-adjusted rates remove any differences among racial/ethnic groups resulting from a difference in the age distribution of the various groups being compared. We have used age-adjusted data wherever possible.

3. Revised Rates

"The 1980 census enumerated approximately 5.5 million persons more than previously estimated for April 1, 1980." (1, p. 27) Therefore, employing population estimates for 1971 through 1979, birth and death rates needed to be revised to reflect new population estimates incorporating the results of the 1980 census. This revision of rates posed several serious problems to the completion of this work. First, all analyses contained in this book depend on *published* data only. It is not always clear when each separate published source, even those sources generated by the National Center for Health Statistics (NCHS), began to published revised rates. Second, while revised crude death rates by cause of death began to appear in the annual volumes of *Vital Statistics of the United States* beginning with data year 1976, revised, age-adjusted death rates by cause of death were not published in annual volumes, or anywhere else to the best of our knowledge. The age distribution of whites differs appreciably from the age distribution of the racial/ethnic groups included in the analyses of this book. To compare population-based rates of any group to whites, age-adjusted rates must be used to account for the age differences of the comparison groups.

In the following chapters, trend tables containing intercensal year data generally are footnoted, indicating that the rates in the table have been revised. When it was not clear whether or not revised rates were used, or when it was certain that revised rates were *not* used (as is true for the vast majority of tables that employ population estimates), data from intercensal years were removed. Since 1980 was the latest year for which published mortality data were available, this did not result in a sacrifice of more current data, nor did it deter us from comparing 1970 with 1980 data.

Indian Health Service data posed a special problem since the latest year for which data were available from this source was 1979. It was decided to include these trend tables rather than use 1970 as the latest data year or exclude this minority group entirely.

4. The Concept of "the Disadvantaged"

It would be preferable to compare affluent racial/ethnic minorities with affluent non-minorities, and racial/ethnic poor with nonminority poor to learn whether it is membership in the racial/ethnic minority or poverty that determines differential health status, where such differentials exist.

In most cases, the data do not exist in such a disaggregated form. We are forced, then, to compare white with black and white with nonwhite in a number of comparisons, recognizing that advantaged blacks and other nonwhites as well as disadvantaged whites are included in the comparison. Differential income and education levels within the racial minority groups and among whites act as confounding variables and further distort the racial comparison. We can, however, predict the direction of these distortions. If the educational and income levels found among the disadvantaged groups were identical to or higher than those found among the advantaged groups, then any differentials would be attributable to group membership and not to income and education. The educational and income levels of the disadvantaged are, however, lower than those of the white comparison group, and thus at least a component of the differentials should be attributable to such socioeconomic factors. In addition, if trend data show a diminution of differentials at the same time that a diminution in socioeconomic differences is shown, then additional credence is given to

these socioeconomic factors as an important determinant of reduced health status.

5. Health Status and Its Measurement

The concept of health status involves two problems: to define health status, and to measure health status. There have been a number of attempts to deal with the former, but we are forced by exigencies to deal solely with the latter.

Health status cannot be merely the absence of disease—rather, it is absence of disease accompanied by a feeling of well-being. It cannot be the relative incidence or prevalence of disease in any simple sense, since a large number of conditions that affect humans are subclinical. We are forced to hope that we each have some idea of what is meant by the concept of health status. Beyond such a loose approach to definition, we must have one additional common understanding of a concept of health status: it is multidimensional in nature and must be dealt with, measured, and interpreted multidimensionally. The health status of the disadvantaged, therefore, cannot be understood in terms of a single measurement, but must be conceived in terms of a profile.

Even with this conceptual foundation, we cannot surge ahead measuring health status in all the ways possible. We again are faced with the pragmatic problem of defining health status in terms of the data available rather than in terms of theoretically possible measurements.

A final point about health status measurement: we are trying to conduct analyses of health status in the absence of a reasonable health status model. Given that health status is multidimensional and that it has to be measured as such, there is no conceptual framework for tying together the various dimensions. We cannot, of course, presume that there is no interaction between the dimensions. We can, for example, look at nutritional deficit as if it were an independent dimension, but we cannot be sure that if improvements in nutrition occurred, they would not be accompanied by improvements along many of the other dimensions measured. In the absence of a model linking the various known health status dimensions, we have to realize that with multiple measures we may be measuring the same underlying dimension duplicatively.

6. Data Biases

Much of the data reported and analyzed in the following chapters can be taken to be highly reliable. For example, the vital statistics and financial expenditures data are based on tallies that probably are reliable, both in their methods of collection and in their actual measurement of what had occurred. The concern for potential biases in these types of data is whether the data are accompanied by accurate sociodemographic measures of the people involved.

Another set of data is based on self reports derived during interviews. Data derived from such a technique may show bias for a number of reasons. For example, there is a possibility that the questions (a) were not understood, (b) were understood differently by the disadvantaged and the advantaged populations, or (c) were answered by the respondents in a way that presented themselves more favorably, or less favorably, than was actually the case. Because of these factors, it is possible that the data are not valid.

Finally, there are data based on physical examinations conducted by health care professionals. This technique should be one of the best sources of health status information. These surveys, however, require intrusive examination procedures which may introduce a bias.

In summary, there are difficulties in dividing the populace into advantaged and disadvantaged, obtaining health status data, and in interpreting the actual meaning of these data. *In spite of all of these difficulties, the chapters that follow present a very consistent picture—one that allows us to make some reasonable conclusions.*

Table 1

Money income of families—percent distribution by income level in constant (1981) dollars, by race and Spanish origin: 1975 and 1980.

Race of Householder and Year	Total fami- lies (1,000)	Percent Distribution of Families, by Income Level								Median Income (dol- lars)
		Under $5,000	$5,000- $9,999	$10,000- $14,999	$15,000- $19,999	$20,000- $24,999	$25,000- $34,999	$35,000- $49,999	$50,000 and over	
All Families										
1975	56,245	4.5	11.4	12.7	12.9	13.2	25.7	11.5	8.0	23,183
1980	60,309	5.6	11.1	12.7	12.7	12.7	20.7	15.4	9.1	23,204
White										
1975	49,873	3.6	10.2	12.3	12.7	13.6	26.8	12.2	8.6	24,110
1980	52,710	4.5	9.7	12.3	12.8	13.0	21.7	16.2	9.9	24,176
Black										
1975	5,586	12.0	22.3	16.2	14.6	10.8	17.5	4.9	1.7	14,835
1980	6,317	15.1	22.0	16.1	12.5	10.5	12.9	8.2	2.7	13,989
Spanish Origin[1]										
1975	2,499	9.1	18.9	18.4	15.1	12.7	12.7	16.9	5.9	16,140
1980	3,235	10.4	18.6	17.5	14.7	11.7	11.7	15.3	8.4	16,242

[1]Persons of Spanish origin may be of any race.
Source: Compiled and abstracted by CHESS, U.S. Bureau of the Census, Current Population Reports, series P-60, No. 134, and earlier reports. *In* U.S. Bureau of the Census, *Statistical Abstract of the United States*: 1982-83 (103d edition). Table 713, p. 432. Washington, DC, 1982.

Table 2

Persons below poverty level and below 125 percent of poverty level: 1975 and 1980.

Year	Persons Below Poverty Level								Persons Below 125 Percent of Poverty Level		Average Income Cutoffs for Non-Farm Family of 4	
	Number (mil)				Percent of total population				Number (mil)	Percent of total popu- lation	At poverty level	At 125 percent of poverty level
	Total[1]	White	Black	Spanish origin[2]	Total	White	Black	Spanish origin[2]				
1975	25.9	17.8	7.5	3.0	12.3	9.7	31.3	26.9	37.2	17.6	5,500	6,875
1980	29.3	19.7	8.6	3.5	13.0	10.2	32.5	25.7	40.7	18.1	8,414	10,518

[1]Includes other races not shown separately.
[2]Persons of Spanish origin may be of any race.
Source: Compiled and abstracted by CHESS, U.S. Bureau of the Census, Current Population Reports, series P-23, No. 26, and P-60, No. 134, and earlier reports. *In* U.S. Bureau of the Census, *Statistical Abstracts of the United States*: 1982-83 (103d edition). Table 727, p. 440. Washington, DC, 1982.

Table 3

Selected characteristics of persons 65 years old and over below poverty level: 1975 and 1980.

Characteristic	Number Below Poverty Level (1,000)		Percent Below Poverty Level	
	1975	1980[1]	1975[1]	1980[1]
Persons, 65 and over[2]	3,317	3,871	15.3	15.7
White	2,634	3,042	13.4	13.6
Black	652	783	36.3	38.1
Spanish origin[3]	137	179	32.6	30.8
In families	1,191	1,423	8.0	8.5
Householder	728	837	8.9	9.1
Male	585	627	8.3	8.2
Female	143	210	12.7	14.0
Other members	463	586	7.0	7.8
Unrelated individuals	2,125	2,448	31.0	30.6
Male	410	408	27.8	24.4
Female	1,716	2,039	31.9	32.3
Persons 60 and over	4,373	4,929	14.2	14.1

[1]Population controls based on 1980 census.
[2]Beginning 1979, includes members of unrelated subfamilies not shown separately. For earlier years, unrelated subfamily members are included in the ''in families'' category.
[3]Persons of Spanish origin may be of any race.
Source: Compiled and abstracted by CHESS, U.S. Bureau of the Census, Current Population Reports, series P-60, No. 133. *In* U.S. Bureau of the Census, *Statistical Abstract of the United States*: 1982-83 (103d edition.) Table 730, p. 442. Washington, DC, 1982.

Table 4

Money income of families—percent distribution by income level, by race and Spanish origin of householder, and selected characteristics: 1980.

Race of Householder, Residence and Educational Attainment	Number of families (1,000)	Percent Distribution of Families, by Income Level ($1,000)									Median income (dol.)
		Under 5.0	5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-39.9	40.0-49.9	50.0 and over	
All families[1]	60,309	6.2	12.7	14.2	14.0	13.7	11.2	14.5	6.8	6.7	21,023
White											
Total	52,710	4.9	11.3	13.9	14.1	14.2	11.8	15.3	7.3	7.2	21,904
In metropolitan areas ..	34,336	4.3	9.5	12.2	13.2	14.0	12.4	17.0	8.6	8.9	23,815
In central cities......	11,826	5.9	11.8	14.3	14.4	13.5	11.3	14.7	6.9	7.2	21,293
Outside central cities .	22,510	3.4	8.3	11.1	12.5	14.2	12.9	18.2	9.5	9.8	25,138
Outside metropolitan areas	18,374	6.1	14.7	17.0	15.9	14.5	10.7	12.2	4.8	4.2	18,794
Householder completed[3] Elementary school:											
Less than 8 years..	3,852	13.0	29.7	22.3	13.4	7.9	4.8	5.9	2.0	1.0	11,483
8 years	3,866	7.2	22.8	22.2	14.5	12.3	7.7	8.8	2.7	1.8	14,501
High School:											
1-3 years	6,404	7.2	15.9	19.0	17.2	13.5	10.5	10.7	3.9	2.2	17,163
4 years	17,846	3.7	9.0	13.4	15.2	16.9	13.9	16.6	6.5	4.8	22,370
College:											
1-3 years	7,488	2.7	6.2	10.5	13.6	15.6	13.5	20.3	9.9	7.7	25,470
4 years or more ...	10,090	1.2	3.0	5.2	8.7	11.5	13.3	21.6	14.5	21.0	32,855
Black											
Total	6,317	16.6	23.8	16.8	12.8	10.2	6.7	8.5	3.0	1.7	12,674
In metropolitan areas ..	4,898	15.6	22.3	15.8	13.1	10.7	7.4	9.5	3.5	2.1	13,726
In central cities......	3,545	18.0	22.8	15.3	13.7	9.6	7.4	8.2	3.1	1.9	12,865
Outside central cities .	1,353	9.3	21.1	17.1	11.6	13.3	7.5	12.9	4.5	2.8	16,242
Outside metropolitan areas	1,419	20.2	28.7	20.0	11.8	8.7	4.2	5.0	1.2	.3	10,257
Householder completed[3] Elementary school:											
Less than 8 years..	1,039	21.8	36.6	18.9	8.6	6.0	4.2	3.0	.8	.2	8,599
8 years	386	18.2	35.2	16.1	10.9	9.1	3.6	4.4	1.8	.5	9,383
High School:											
1-3 years	1,287	19.4	26.0	17.1	15.2	9.6	5.7	4.7	1.5	.8	11,331
4 years	1,835	12.0	19.5	16.9	14.4	12.6	8.3	11.4	3.8	1.1	15,504
College:											
1-3 years	821	7.8	16.2	18.4	13.1	11.2	9.0	15.3	4.9	4.1	18,114
4 years or more ...	406	3.9	8.1	11.7	11.0	15.9	12.2	19.1	9.3	8.8	24,830
Spanish Origin[2]											
Total	3,235	11.5	20.8	18.7	14.9	11.3	8.3	9.0	3.1	2.5	14,717

[1]Includes other races not shown separately
[2]Persons of Spanish origin may be of any race.
[3]Restricted to families with householder 25 years old and over

Source: Compiled and abstracted by CHESS. U.S. Bureau of the Census, Current Population Reports, series P-60, No. 132. *In* U.S. Bureau of the Census, *Statistical Abstract of the United States*: 1982-83 (103d edition). Table 715, p. 433. Washington, DC, 1982.

Table 5

Years of school completed for persons 25 years old and over by sex, race, and Spanish origin: 1960, 1970, 1980.

Year, Race, and Sex	Population (1,000)	Percent of Population Completing							Median school years completed
		Elementary school			High school		College		
		0-4 years	5-7 years	8 years	1-3 years	4 years	1-3 years	4 years or more	
1960, all races ..	99,438	8.3	13.8	17.5	19.2	24.6	8.8	7.7	10.6
White	89,581	6.7	12.8	18.1	19.3	25.8	9.3	8.1	10.9
Male	43,259	7.4	13.7	18.7	18.9	22.2	9.1	10.3	10.7
Female	46,322	6.0	11.9	17.8	19.6	29.2	9.5	6.0	11.2
Black	9,054	23.8	24.2	12.9	19.0	12.9	4.1	3.1	8.0
Male	4,240	28.3	23.9	12.3	17.3	11.3	4.1	2.8	7.7
Female	4,814	19.8	24.5	13.4	20.5	14.3	4.1	3.3	8.6
1970, all races ..	109,310	5.3	9.1	13.4	17.1	34.0	10.2	11.0	12.2
White	98,112	4.2	8.3	13.6	16.5	35.2	10.7	11.6	12.2
Male	46,606	4.5	8.8	13.9	15.6	30.9	11.3	15.0	12.2
Female	51,506	3.9	7.8	13.4	17.3	39.0	10.1	8.6	12.2
Black	10,089	15.1	16.7	11.2	23.3	23.4	6.9	4.5	9.9
Male	4,619	18.6	16.0	11.1	21.9	22.2	6.7	4.6	9.6
Female	5,470	12.1	17.3	11.3	24.5	24.4	6.0	4.4	10.2
1980, all races[1] .	130,409	3.4	6.0	8.2	13.9	36.8	14.9	17.0	12.5
White	114,763	2.6	5.4	8.3	13.1	37.6	15.1	17.8	12.5
Male	54,389	2.7	5.5	8.3	12.5	33.1	15.8	22.1	12.6
Female	60,374	2.5	5.3	8.4	13.7	41.6	14.5	14.0	12.5
Black	12,927	9.2	11.1	7.2	21.3	30.8	12.5	7.9	12.0
Male	5,717	11.4	10.6	7.1	19.9	29.8	13.5	7.7	12.0
Female	7,209	7.4	11.5	7.4	22.4	31.5	11.7	8.1	12.0
Spanish origin[2]	5,934	15.8	16.0	8.7	14.9	26.7	10.2	7.7	10.7
Male	2,825	16.5	15.4	8.5	14.8	24.0	11.8	9.2	10.9
Female	3,109	15.3	16.7	8.9	15.0	29.2	8.7	6.2	10.6

[1]Population controls based on the 1980 census.
[2]Persons of Spanish origin may be of any race
Source: Compiled and abstracted by CHESS, U.S. Bureau of the Census, U.S. Census of Population 1960, vol. 1, and Current Population Reports, series P-20, No. 207, and unpublished data. *In* U.S Bureau of the Census, *Statistical Abstract of the United States*: 1982-83 (103d edition). Table 226, p. 143. Washington, DC, 1982.

Table 6

Percent distribution of the resident population, by age: 1970 and 1980.

Year, sex, and race	Total, all years	Under 5 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years	55-59 years	60-64 years	65-74 years	75 years and over	5-13 years	16-17 years	18-24 years	16 years and over	18 years and over	Median age (yr.)
Percent																						
1970[1]	100.0	8.4	9.8	10.2	9.4	8.1	6.6	5.6	5.5	5.9	6.0	5.5	4.9	4.2	6.1	3.7	18.0	7.8	11.7	69.5	65.7	(x)
1980[2]	100.0	7.2	7.4	8.1	9.3	9.4	8.6	7.8	6.0	5.2	4.9	5.2	5.1	4.5	6.9	4.4	(NA)	(NA)	(NA)	(NA)	(NA)	(x)

In thousands, except as indicated. 1970 and 1980 data based on enumerated population as of April 1. Excludes Armed Forces overseas
NA = Not available.
X = Not applicable
[1]The 1970 resident population count is 203,302,031; the difference of 66,323 is due to errors found after tabulations were completed
[2]The data shown for April 1, 1980 are consistent with the *1980 Census of Population and Housing, Advance Reports*, PHC80-V total count of 226,505,825.
Source: Compiled and abstracted by CHESS, U.S. Bureau of the Census, Census of Population: 1970, vol. 1. and Current Population Reports, series P-25, No. 717. *In* U.S. Bureau of the Census, *Statistical Abstract of the United States*: 1982-83 (103d edition). Table 31, p. 27. Washington, DC, 1982.

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Chapter II

Vital Statistics:
A First Look at Health Status

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Chapter II   Vital Statistics

Overview

Blacks are the largest minority group in the United States, making up 11.7 percent of the population in 1980. Persons of Spanish origin (hereafter referred to as Hispanics), and Asian and Pacific Islanders, are the second and third largest minority groups, making up 6.4 and 1.5 percent of the population respectively. The age distributions of selected minority subpopulations differ markedly from those of the remainder of the population. Roughly 60 percent of blacks, Hispanics, and American Natives are under 30 years of age, compared with only 50 percent of the white population. Higher proportions of minorities fall below poverty level and have lower median incomes and lower educational levels than whites, with the exception of Asian and Pacific Islanders, whose median income and educational attainment are higher than those of whites.

Birth rates for the U.S. population have increased since 1975, with whites experiencing a greater increase than nonwhites. Birth rates of minority groups are considerably higher than those of the population as a whole. The greatest ratio of minority to total population birth rates was that of American Natives (1.86 in 1978), followed by Hispanics, (1.43 in 1980) and blacks (1.39 in 1980). The higher fertility rates of blacks and Hispanics compared with whites suggest that their elevated birth rates are real and not a consequence of

higher proportions of women of childbearing age.

The proportion of blacks using contraception was found to be lower than the proportion of whites, and over twice the percentage of blacks have been reporting unwanted births than have whites in recent years.

While nonwhites have experienced considerably greater declines in mortality than have whites in the past 10 years, they still experienced a mortality rate 37.5 percent higher than that of whites in 1980, compared with a mortality rate 44.1 percent higher than that of whites in 1970. Nonwhite females have experienced the greatest decline in mortality in the past decade, and in most decades since the turn of the century. The mortality rates of American Indians and Alaska Natives was 36.7 percent higher than that of whites in 1979. The mortality rate of all nonwhites was 37.8 percent higher than that of whites in 1970.

With regard to disease-specific mortality, blacks have higher age-adjusted death rates for 13 of the 15 leading causes of death. The greatest differences between blacks and whites in absolute number of deaths per 100,000 population were found for (a) diseases of the heart, (b) malignant neoplasms, and (c) homicide and legal intervention.

Life expectancy was higher for whites (75.1 years) than for blacks (69.3 years) in 1982. Like the slight narrowing of the racial gap with respect to mortality, however, the ratio of black to white expected life spans has also narrowed from 1.12 in 1970 to 1.08 in 1982.

Proportionately fewer non-whites are married and more are divorced compared with whites. While for each race/sex group the proportion who are married is decreasing and the proportion who are unmarried is increasing, these changes are occurring more rapidly among non-whites than among whites. One exception is the divorce rate among nonwhite males, which is changing less rapidly than divorce rates of other segments of the population.

A. Introduction

As a first look at the health status of the disadvantaged, this chapter forms the foundation for the discussion of other health problem areas covered in the following chapters. The material in this chapter represents the beginning of the process of answering the basic questions of concern in this book: How do the disadvantaged differ from the rest of the population with regard to health status, utilization of the health care system, and expenditures for health care, at the present time and over time? and What factors explain any of these differences?

This chapter opens with a description of the demographic characteristics of the American population. The remainder of the chapter treats that subdivision of health statistics commonly referred to as vital statistics, which include births, deaths, marriages, and divorces. Vital statistics also serve as variables by which the health, growth, and movement of a

population may be measured.

Birth is associated with population growth and renewal, while death is usually associated with the most severe outcome of ill health. Marriages, in addition to their relationship to birth rates and to health, are indicators of economic trends. Births, deaths, and marriages, along with the related measures of fertility, life expectancy, and divorce, are the basic measures used in this chapter to describe the health status of the disadvantaged, relative to the remainder of the population.

Chapter I of this book contains additional caveats in the interpretation of the data presented. In particular, the reader should note material pertaining to revised death rates.

B. Population and Socioeconomic Characteristics

This section presents population data in addition to age, sex, and income data concerning minority groups. "Population size, age and sex structure, socioeconomic composition, and other characteristics differentiate minority groups from the White population. Because these characteristics influence health, they must be considered when assessing the health status of minority groups." (1, p. 3)

"In the 1980 census, 15 groups were listed in the race item on the 1980 questionnaire: White, Black, American Indian, Eskimo, Aleut, Chinese, Filipino, Japanese, Asian Indian, Korean, Vietnamese,

Hawaiian, Samoan, Guamanian, and Other." (2, p. 3) Before discussing the ethnic composition of the American population, we should point out the methods used in census procedures. All race categorization as well as the Spanish origin categorization (thereafter referred to as Hispanics) was based on self identification of respondents. In the 1980 census, among children of mixed racial parentage who were unable to choose a single race, the race of the mother was assigned during editing. This procedure was in contrast to that used in the 1970 census, wherein the race of the father was assigned, absent a self-selection. (2, p. 3)

Blacks continue to be the largest minority group in the United States. In 1980, blacks numbered almost 26.5 million, making up 11.7 percent of the total population (see Table 1). Percentages of the population falling into selected minority groups in 1980 based on data from Table 1 are listed below:

Ethnic Group	Population	Percent
Blacks	26,500,000	11.7
Hispanics	14,600,000	6.4
Asians and Pacific Islanders	3,500,000	1.5
American Indians	1,400,000	.6

The category "Hispanics" includes persons of any race having origins in a Spanish-speaking country. This group is an ethnic rather than a racial group, however, since it is composed almost solely of persons who consider themselves white (95 percent

white, 3 percent black, 2 percent other). (3, p. 9)

Geographic location of minority groups is also presented in Table 1. Over 50 percent of all blacks live in the South. Higher concentrations of almost all other racial groups are found in the west, as are Hispanics. The composition of States comprising these regions is shown in Figure 1.

The age distributions of whites, blacks, American Indians, and Hispanics are found in Tables 2, 3, and 4. In 1981, the median age of blacks was 6 years younger than that of whites (25.2 compared with 31.2 years). This difference, however, is becoming smaller over time. In both racial groups, an increase in median age occurred between 1970 and 1981, with blacks experiencing a greater percentage increase (12.5 percent) than whites (8.0 percent).

Even more so than blacks, Hispanics and the American Natives group (American Indian and Alaskan Natives) have a younger age distribution than have whites (see Tables 3 and 4). Combining age groups found in Tables 2, 3, and 4, broad age group comparisons of minority groups with whites can be made.

Age	Whites	Blacks	Am. Natives	Hispanics
Under 30(%)	48.0	58.8	63.9	63.3
30-64 years(%)	40.0	33.4	30.8	31.9
65 and over(%)	12.1	7.9	5.2	4.9
Total %	100.1	100.1	99.9	100.1

Note the concentration of the racial/ethnic subgroups in the youthful age brackets. Approximately one-sixth more of the American Native and Hispanic populations are under 30 than is the case for the white population, and approximately one-ninth more of the black population falls into this age category. Fifty percent more of the white population is in the 65-and-over age group compared to the proportion of the black population in that age bracket, and over twice the proportion of whites are in that age bracket compared to the American Native and Hispanic populations.

Regardless of the social and economic environment, blacks and Hispanics would tend to be poorer than whites by virtue of the relatively small proportions of their members in the most income-productive age group, namely 30 to 64 years. While 40 percent of the white population falls into this age range, only 33 percent of blacks and 32 percent of Hispanics belong to this income-productive age group. On the other hand, the younger age distributions of blacks and Hispanics render them at lower risk of experiencing the high rates of morbidity that are associated with an older population.

Economic level is another correlate of health status. For the most part, measures of health status are inversely related to income level measures. Many examples of this relationship are found throughout this book, with race serving as a measure of income level. In addition, the classic work by Kitagawa and Hauser on mortality differentials among socioeconomic levels illustrates this point using data from an earlier period of time (4). With regard to some diseases, however, morbidity and/or mortality increases with income level. Two examples of such exceptions to the general rule are incidence rates of breast cancer which are higher among women belonging to higher socioeconomic levels (5, 6) and suicide rates which are higher among whites than blacks (see Table 16).

Social and economic characteristics of the population by race and Spanish origin are presented in Table 5. The racial group with the highest median income in 1979 was a minority group, namely Asians and Pacific Islanders with a median family income of $22,075, followed by whites ($20,840), Hispanics ($14,711), and blacks ($12,618).

Looking at income level from another perspective, 14 percent of the population was

Map of the U.S., Showing Census Divisions and Regions

WEST		NORTH CENTRAL		NORTHEAST	
Pacific	Mountain	West North Central	East North Central	Middle Atlantic	New England

WASHINGTON
MONTANA
OREGON
IDAHO
WYOMING
NEVADA
UTAH
CALIFORNIA
COLORADO
ARIZONA
NEW MEXICO

NORTH DAKOTA
MINNESOTA
SOUTH DAKOTA
WISCONSIN
MICHIGAN
NEBRASKA
IOWA
INDIANA
ILLINOIS
OHIO
KANSAS
MISSOURI
WEST VIRGINIA
KENTUCKY
OKLAHOMA
TENNESSEE
ARKANSAS
MISSISSIPPI
GEORGIA
ALABAMA
TEXAS
LOUISIANA

MAINE
VERMONT
NEW HAMPSHIRE
MASSACHUSETTS
NEW YORK
RHODE ISLAND
CONNECTICUT
NEW JERSEY
PENNSYLVANIA
DELAWARE
MARYLAND
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
FLORIDA

ALASKA
HAWAII

Pacific
Mountain

West South Central	East South Central	South Atlantic

SOUTH

Source: U.S. Bureau of the Census. Taken from *Statistical Abstract of the U.S.:* 1982–83. U.S. Government Printing Office, Washington, DC, December 1982.

designated below poverty level in 1981 (see Table 6). While 11.1 percent of the white population was classified as below poverty level, the proportion of the black population (34.2 percent) classified so was three times that of the whites.

Educational levels are presented in Table 5. The relative position of racial groups when ranked by educational level is similar to their position when ranked by income level. Using the percentage of persons with one or more years of college completed to characterize the groups, Asians and Pacific Islanders ranked highest (50.1 percent), followed by whites (33.2 percent), blacks (21.8 percent), and Hispanics (19.4 percent).

C. Birth Rates and Fertility
Records of births are kept primarily to facilitate measurement of population growth and to plan services for different age groups of populations. Many factors of importance to the future health status of the newborn and mother do not appear in birth records, however. Some of these factors are the dietary, rest, exercise, and alcohol and tobacco consumption practices of the mother during gestation. Factors surrounding birth, such as the age and condition of the mother, legitimacy, condition of the live birth, and levels and types of care received at the time of birth have long-range health implications. While some of these factors are discussed in Chapter III of this book, this chapter limits itself to trends in birth and fertility rates.

In Table 7, the number of live births per 1,000 population are presented by race for selected years from 1940 to 1980. The two main racial groupings found in Table 7 are whites and all other races (nonwhites). Data pertaining to nonwhites are presented as a total for all other races combined and as a subtotal for blacks separately. The nonwhite birth rate was 51.0 percent higher than that for whites in 1980 (22.5 for nonwhites compared with 14.9 for whites). In 1970, however, the nonwhite rate was 44.3 percent higher than that for whites (25.1 for nonwhites compared with 17.4 for whites). The absolute difference in birth rates between 1970 and 1980 was only about 2½ points for each race group, however.

The birth rate for the total U.S. population is on the increase, reaching 16.0 births per 1,000 population in 1982 (7, p.1), the highest it has been since 1971.

While a decrease in birth rates occurred between 1970 and 1980 for both whites and nonwhites (a 14.4 percent decrease for whites and 10.4 percent decrease for nonwhites), birth rates increased during the shorter period 1975 to 1980 (a 9.6 percent increase for whites and a 7.1 percent increase for nonwhites).

Birth rate data for Hispanics have become available only recently. Information on births of Hispanic parentage, presented in Table 8, is based on 22 States that include an item on their birth certificate on the ethnic or Hispanic origin of the mother and father (3, p. 1). These 22 States accounted for an estimated 90 percent of all births of Hispanic origin in the United

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States in 1980. Birth rates of Hispanics are considerably higher than white birth rates, are only slightly higher than the birth rates of blacks, and are lower than the birth rates of Indians and Alaska Natives (see Table 9). The number of babies born per 1,000 population among Hispanics, among blacks, and among whites was 23.5, 22.9, and 14.2, respectively, in 1980, while the birth rate of Indians and Alaska Natives was 28.4 in 1978.

A comparison of the birth rates of Indians and Alaska Natives with the total population over the past 10 years reveals very little change in the relative difference in birth rates of these two comparison groups. The number of live births per 1,000 population among Indians and Alaska Natives was 28.4 in 1978 compared with a birth rate of 15.3 for the population as a whole, producing a ratio of 1.86 (see Table 9). A similar ratio of 1.85 was observed in 1968, due to similar rates of decrease in birth rates for both comparison groups (about 12 percent).

The birth rate is partly a function of the age distribution of females in the population. For this reason, the fertility rate, which is the number of live births per 1,000 women aged 15 to 44, is also used to describe the birthing experience of populations. From 1970 to 1980, the U.S. fertility rate decreased 22.2 percent, from 87.9 to 68.4 (see Table 7). The decrease among whites during this period was 23.1 percent compared with 21.6

percent among nonwhites. The fertility rate of nonwhites was 34.4 percent higher than that of whites in 1970, and 36.9 percent higher than that of whites in 1980.

A comparison can be made of birth rate and fertility rate differentials of Hispanics and other groups using data for the 22 States that report Hispanic origin on birth certificates (see Tables 8 and 10). Birth and fertility rates of specified minority groups for 1980 are presented below, along with racial differentials expressed as ratios of minority birth or fertility rates to those of the total population.

	Percent Females	Percent of Females 15-44
White	51.2	23.0
Black	52.7	25.1
Hispanic	50.2	24.6

Both the black and the Hispanic populations are composed of slightly higher proportions of women of childbearing age than the white population which may account in part for their higher birth rates. Personal preferences, contraceptive practices, and cultural influences may also contribute

	Birth Rate	Ratio to "All Origins" b/a, c/a, d/a	Fertility Rate	Ratio to "All Origins" b/a, c/a, d/a
a) All origins	16.4	—	70.2	—
b) White (non-Hispanic)	14.2	.87	62.4	.89
c) Black (non-Hispanic)	22.9	1.40	90.7	1.29
d) Hispanic	23.5	1.43	95.4	1.36

Since fertility rates of minorities are higher than those of whites, the higher birth rates of minorities cannot be explained solely by an excess of women of childbearing age among this group. The fact that fertility rate differentials are lower than birth rate differentials, however, suggests that a *part* of the birth rate excess of minorities is a function of greater numbers of women of childbearing age among minorities. Numbers of women and numbers of women of childbearing age (expressed as a percentage of the total population in each race or origin group) in 1980 (based on data from

Tables 2 and 3) are presented below.

to the higher birth rates of these population groups.

"The intrinsic rate of natural increase is the rate that would eventually prevail if a population were to experience, at each year of age the birth rates and death rates occurring in the specified year and if those rates remained unchanged over a long period of time." (2, p. 60) In Table 11 intrinsic rates of natural increase are presented for 1940 to 1979 by race. From 1960 to 1979 the intrinsic rate of natural increase has declined for both racial groups, from 17.1 for

whites and 27.7 for nonwhites in 1960-1964 to −7.8 for whites and 4.1 for nonwhites in 1975-1979.

Given the fertility rates and death rates of recent years, significant shifts in the racial composition of the population are to be expected. The direction of change in population composition has been, obviously, a decrease in the proportion of the white population and an increase in the proportion of racial minorities. The rate of natural increase among nonwhites, however, was lower in 1979 (5.2) than in 1969 (15.4). The shift in racial proportions observed in the last few decades is, therefore, probably slowing with respect to these two racial groups.

The higher birth rates experienced by racial minorities may be due to several factors. One factor that should not be excluded from consideration is personal preference. Other factors with perhaps a stronger influence are related to the lower frequency with which minorities practice contraception, obtain abortions, or undergo sterilization. These practices may, in turn, be a result of greater financial barriers, less awareness of the availability of these services, less acceptance of these practices, or less access to these services.

Data from the National Survey of Family Growth indicate that blacks report, on an average, a much higher number of unwanted births than whites (see Table 12). While the percent of unwanted births among both whites and blacks decreased from 1973 to 1976, blacks still report a percentage of unwanted births 2.7 times

that reported by whites in 1976, 25.6 percent compared with 9.5 percent (see Table 12). The proportion of unwanted births is inversely related to education, and the rate is slightly lower among married mothers than it is among unmarried mothers. According to the National Fertility Survey, an increase in contraceptive use occurred between 1965 and 1973, followed by a slight decrease between 1973, and 1976 (see Table 13). This was true for both white and black racial groups and for both age groups shown in Table 13. The proportion of blacks using contraception remains lower than the proportion of whites (58.6 percent among blacks aged 15-44 years compared with 68.8 percent among whites of the same age).

D. Mortality

The transition from good health to ill health is often a gradual one, and to decide where one state ends and the other begins requires judgment. Because mortality is easy to ascertain, it has continued to be the most reliable single indicator of health conditions. Mortality statistics, however, have the limitation of being indicative of only a fraction of the morbidity in a population, and an *in extremis* fraction at that. Since death may occur in the absence of lengthy morbidity, and many disabilities of long duration do not result in death, morbidity and disability measures are used in addition to mortality measures to describe the health status of a population more fully.

Although the death rate alone is not a comprehensive measure of health status, a decrease in the death rate provides one good tool for assessing overall improvements in a population's health status. No matter how healthy a population may be, however, a large proportion of elderly persons will raise the death rate of that population. When comparisons of death rates over time or among subgroups are made, therefore, differences in the age distribution of the comparison groups or periods must be taken into account. This is done by applying the age-specific death rates of a given year or subgroup to the age distribution of the population at one point in time, and is referred to as the direct method of age adjustment. All of the death rates discussed in this section are age adjusted to the 1940 U.S. population.

The greatest reductions in mortality rates in the United States occurred in the first half of the century. The age-adjusted mortality rate decreased from 17.8 deaths per 1,000 population in 1900 to 8.4 in 1950 (see Table 14), a decrease of 52.8 percent over the 50-year period. Only a modest decrease (6.6 percent) in the age-adjusted death rate occurred in the 1960's, followed by a large decrease (16.9 percent) in the 1970's (see Table 14).

Presented below are calculations on the data in Table 14. The changes in age-adjusted death rates for four race/sex groups in the past two decades appear as percentages.

| | White | | Nonwhite | |
	Males	Females	Males	Females
1970-1980	– 15.7	– 18.0	– 17.1	– 24.7
1960-1970	– 3.3	– 10.7	– 1.7	– 13.5

For each of these four race/sex groups, greater declines in mortality were experienced in 1970-1980 than in 1960-1970. Females consistently experienced greater drops in mortality than males, and nonwhites have experienced greater drops in mortality than whites (except among males in 1960-1970). Despite the larger gains among nonwhites, they continued to have a higher mortality rate than whites in 1980. However, the mortality rate among nonwhites was 37.5 percent higher than that of whites in 1980, compared with a mortality rate 44.1 percent higher in 1970. The greatest improvement during the 10-year period as well as during the 80 years since the turn of the century, has been among nonwhite females. The age-adjusted mortality rates of nonwhite females were almost as high as those of nonwhite males at the turn of the century. The rate for nonwhite females dropped below the rate for white males in the 1950's and was approaching the rate of white females in the 1970's (see Figure 2).

Recent improvements in U.S. mortality rates, after a period of relative stability, have attracted attention. The decline is thought to be due primarily to reductions in heart disease and stroke (8, p. 24). Death rates from heart disease dropped dramatically in the 1970's, as did death rates from cerebrovascular disease and pneumonia (see Figure 3). Although death rates from some causes of death are increasing (see Figure 3), the impact on the total death rate of an increase in septicemia for example, is minimal compared with the impact of a decrease in death rates from heart disease.

One of the racial minorities included in the nonwhite category is American Indians. Death rates of American Indians are substantially higher than those for the total population. In 1979, the Indian and Alaska Native mortality rate was 770.2 per 100,000 population, compared with a rate of 588.8 for all races in the United States, yielding a mortality rate 31 percent higher than that of the total population (see Table 15).

A more thorough treatment of disease-specific mortality is found in those chapters later in this book that deal with specific disease conditions. This chapter briefly examines disease-specific mortality trends for the population and the relative impact on the disadvantaged vis-a-vis leading causes of death. In Figure 3, age-adjusted death rates for 13 of the 15 leading causes of death are shown from 1950 to 1980. In reading Figure 3, note that the or-

dinate is based on a logarithmic scale.

Among the five leading causes of death, only one has increased appreciably since 1950: deaths from chronic obstructive pulmonary diseases. Death rates from heart disease, stroke, and accidents are decreasing, while death rates from cancer have increased only slightly in the last 30 years. Among the 15 leading causes of death, age-adjusted death rates have increased most sharply for the following three diseases: chronic obstructive, pulmonary diseases (5th cause), homicide and legal intervention (11th cause), and septicemia (15th cause).

The 15 leading causes of death in the United States in 1980 are listed in Table 16, with sex and race ratios. Among the *five* leading causes of death, males have:

1. roughly three times the death rate of females for two of the causes (accidents and chronic obstructive pulmonary disease);
2. almost twice the rate of females for one of the causes (diseases of the heart);
3. an over 50 percent higher rate than females for another of the causes (cancer); and
4. a 20 percent higher rise than females for another cause (cerebrovascular disease).

Considering *all* 15 leading causes of death, males have higher death rates than females for all of those causes, ranging from only 2 percent higher (in the case of diabetes) to close to 400 percent higher (in the case of

Figure 2

Age-adjusted mortality rates for Whites, by sex: U.S., 1935–1980 (deaths per 1,000 population)

Male **Female**
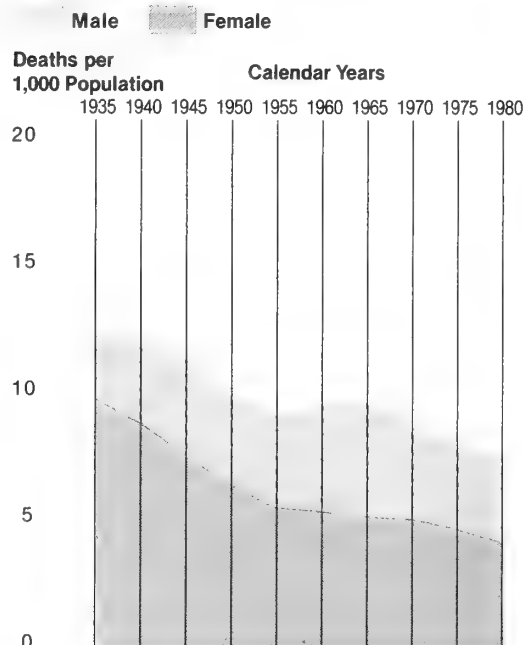
Age-adjusted mortality rates for Nonwhites, by sex: U.S., 1935–1980 (deaths per 1,000 population)

Male **Female**
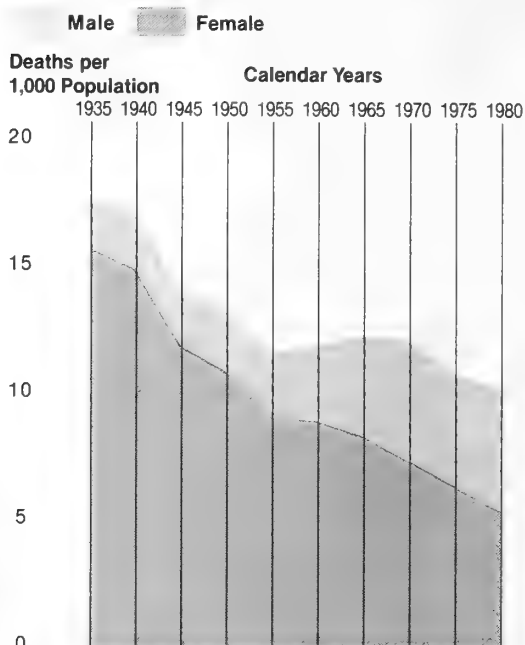
Source: "Facts of Life and Death," National Center for Health Statistics, USDHEW, Rockville, MD, 1974, Table 24 p. 29. 1970, 1975, and 1980 data are taken from Table 14 of this chapter.

homicide and legal intervention). The death rate from suicide is three and a third times higher; the death rate from accidents and chronic obstructive pulmonary disease is almost three times higher.

Turning now to racial differences, blacks have higher age-adjusted death rates for 13 of the 15 leading causes of death; their rates are lower than whites for chronic obstructive lung disease and suicide. They are almost six times more likely to die from homicide and legal intervention as are whites; three times more likely to die from nephritis, nephrotic syndrome, and nephrosis; and almost three times more likely to die from septicemia. These three causes of death, however, represented only 2.5 percent of all deaths that

The ratio of one death rate to another provides a measure of the relative difference between those two death rates; subtraction of death rates provides a measure of the absolute difference. Among the 15 leading causes of death in 1980, those causes with the greatest absolute difference in number of deaths per 100,000 population were:

1. diseases of the heart (blacks had 58.1 more deaths per 100,000 population than whites);
2. malignant neoplasms (blacks had 42.5 more deaths per 100,000 population than whites); and

3. homicide and legal intervention (blacks had 33.7 more deaths per 100,000 population than whites).

The above calculations are based on age-adjusted death rates found in reference 9, pages 31-33. These three causes of death accounted for 60.3 percent of all deaths in the total population in 1980 (see Table 1, Chapter V).

E. Life Expectancy

Life expectancy at birth in the United States in 1982 was 74.5 years for the overall population (see Table 17). Disaggregating this statistic by race, however, life expectancy is observed to be higher for whites (75.1 years) than for nonwhites (70.9 years) and blacks (69.3 years). From 1970 to 1982,

Figure 3

Age-adjusted death rates for 13 of the 15 leading causes of death: U.S., 1950–80
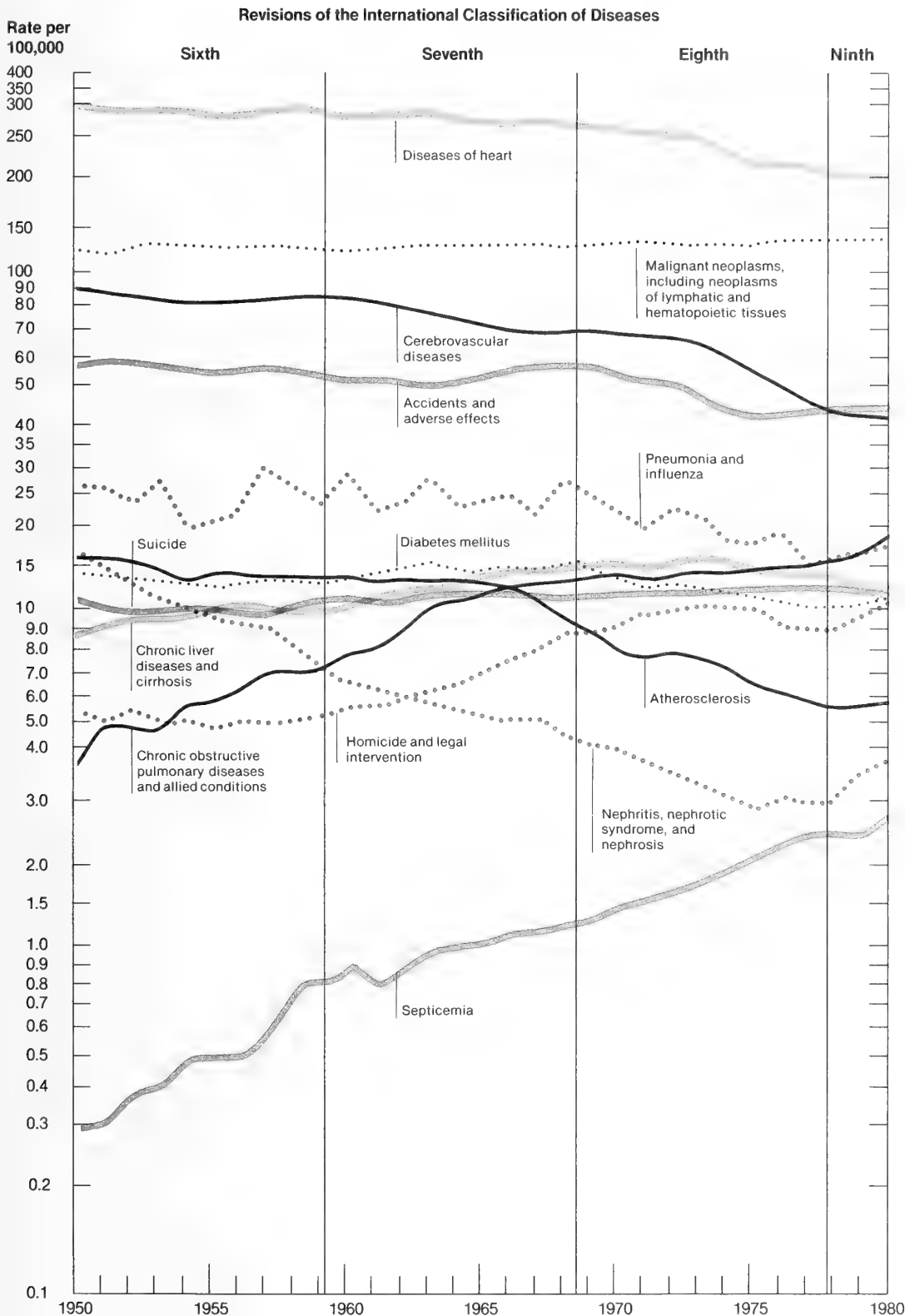
Revisions of the International Classification of Diseases

Rate per 100,000

Sixth   Seventh   Eighth   Ninth

Diseases of heart

Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues

Cerebrovascular diseases

Accidents and adverse effects

Pneumonia and influenza

Suicide

Diabetes mellitus

Chronic liver diseases and cirrhosis

Atherosclerosis

Chronic obstructive pulmonary diseases and allied conditions

Homicide and legal intervention

Nephritis, nephrotic syndrome, and nephrosis

Septicemia

whites experienced a 3.4-year gain, compared with a higher gain of 5.6 years for nonwhites and 5.2 years for blacks. The white-to-black differential for life expectancy was 1.08 in 1982 compared with 1.12 in 1970. If this rate of convergence of life expectancy rates were to continue, then the racial difference would disappear before the year 2010.

In 1982, women had a considerably longer life span than men (7.4 years longer). White women live 7.3 years longer than white men, while black women live 9.0 years longer than black men. The years of life gained between 1970 and 1982 were highest for black females (5.5), followed by blacks males (4.8), white males (3.4), and white females (3.1).

Before leaving the subject of life expectancy, mention should be made of a phenomenon referred to as the racial mortality crossover. Although this phenomenon deserves a fuller treatment than a work of this type allows, a brief discussion is worthy of inclusion. Researchers have observed lower life expectancy among nonwhites than among whites at lower age levels, followed by a reversal to higher life expectancy among nonwhites than among whites at advanced ages. In his article addressing this issue, Markides (10) used life expectancy data from 1978 (see Table 18). He reported shorter life expectancy among nonwhite males than among white males until the age of 65, at which time nonwhite males have higher life expectancy than white males.

Among women the racial crossover occurs later.

The reasons for this phenomenon are not known. The racial crossover phenomenon may involve differential early mortality, which selects out less robust persons from the disadvantaged population at relatively early ages so that at advanced ages the disadvantaged population has proportionately more robust persons (11). In addition, according to this theory, as minority mortality is reduced at early ages, the crossover will occur at later ages and eventually disappear. To see what has happened since 1978, data from a recent life table (9, pp. 12-15) are presented below:

Years of Life Remaining

Age Interval	Total		All Other			
	Males	Females	Males	Females	Males	Females
65-70	14.2	18.5	13.5	17.3	12.9	16.5
50-75	11.3	14.8	11.1	14.2	10.5	13.4
75-80	8.8	11.5	8.9	11.4	8.3	10.7
80-85	6.7	8.6	6.9	9.0	6.3	8.2
85 and over	5.0	6.3	5.3	7.0	4.5	6.1

If a mortality crossover does occur, it is at a later age, 80, than shown in the 1978 data. Also, the crossover seems to occur in races other than white but does not occur among blacks. Explanations for this differential racial effect are highly speculative. The reader should also be aware that there has been some speculation that the crossover effect does not occur, and that the apparent phenomenon is a result of invalid data.

F. Marriages and Divorces

While both marriage and divorce rates have undergone change in recent decades, the change in divorce rates has attracted more attention. "The recent rapid rise in the American divorce rate, to heretofore unprecedented levels, must be counted among the major demographic changes occurring in the United States since World War II." (12, p. 1)

Although marriage and divorce data are the proper domain of vital statistics, they are not direct measures of health status in the same way as are the other measures included in this chapter. Marital status influences the birth rate, is a risk factor in some disease conditions, and is an economic indicator. Divorce rates are also economic indicators and they are related to the health status of the population to the extent that the dissolution of family life may exert a negative influence on the happiness and health of each family member.

Of the four marital states, single, married, widowed, and divorced, the widowed proportion of the population (about 8 percent) has changed least from 1970 to 1981 (see Table 19). The married percentage of the population changed from 71.7 percent in 1970 to 64.9 percent in 1981. While 20.5 percent of the population was single in 1981, 16.2 percent of the population was single in 1970. While only 3.2 percent of the population was divorced in 1970, 6.7 percent was divorced in 1981. The population as a whole, then, has shifted to proportionately greater numbers of divorced persons, a lower proportion of married persons, and a higher proportion of single persons, while the proportion of widowed persons has remained relatively stable during the last 11 years.

The distribution among marital states of blacks and Hispanics is presented in Table 20. Abstracting figures from Tables 19 and 20, a comparison of these two minority groups with the total population can be made for 1980 and 1970.

	Total		Black		Hispanic Origin	
	1970	1980	1970	1980	1970	1980
Single	16.2	20.1	20.6	30.5	29.3	30.8
Married	71.7	65.7	64.1	51.4	62.4	59.8
Widowed	8.9	8.0	11.0	9.8	4.9	4.0
Divorced	3.2	6.2	4.4	8.4	3.4	5.3

The marital status of these two minority groups is similar to that of the population as a whole in that the proportion of single and divorced persons has increased, the proportion of married persons has decreased, and the proportion of widowed persons has changed little in the past 10 years. Striking dissimilarities between these minority groups and the total population, however, are also seen:

1. Appreciably higher proportions of blacks and Hispanics were single in the United States in 1980, compared with the total population.

2. Hispanics display the greatest stability with regard to marital state during this 10-year period in two ways: proportionately fewer divorces and less change in the four marital states between 1970 and 1980.

3. A far higher proportion of widowed persons is found among blacks than among Hispanics or the total population.

Since there are proportionately higher numbers of younger persons in these two minority groups than there are in the population as a whole, one would expect proportionately higher numbers of persons in the single state and lower numbers in the widowed state, other things being equal. This is true, with the exception of the higher proportion of blacks in the widowed state, given the younger age distribution. In 1980, 9.8 percent of blacks were widowed—14.3 percent of black females and 4.2 percent of black males (see Table 20), compared with 10.8 percent of females and, 2.0 percent of males in the total population (see Table 19).

Table 1

Resident population by race and Spanish origin, by State: 1980.

[In thousands. For composition of regions, see fig. 1]

Region, Division, and State	Total	White	Black	American Indian[1]	Chinese	Filipino	Japanese	Asian Indian	Korean	Vietnamese	All other races	Spanish origin[2]
U.S.	226,546	188,372	26,495	1,420.4	806.0	774.7	701.0	361.5	354.6	261.7	6,999.2	14,609
Regions:												
Northeast	49,135	42,326	4,848	79.0	217.7	75.1	46.9	120.8	68.2	24.9	1,328.0	2,604
No. Central ...	58,866	52,195	5,337	248.4	72.9	80.0	44.5	85.2	62.3	36.7	704.0	1,277
South	75,372	58,960	14,048	372.2	90.6	82.6	44.7	83.6	70.4	80.3	1,539.9	4,474
West	43,172	34,890	2,262	720.7	424.8	537.0	564.9	72.0	153.8	120.0	3,427.4	6,254
N. Eng.	12,348	11,586	475	21.6	33.0	8.5	7.8	15.5	8.6	6.1	187.2	299
Maine	1,125	1,110	3	4.1	.5	.7	.3	.4	.5	.5	4.8	5
N.H.	921	910	4	1.4	.8	.3	.4	.6	.5	.2	2.3	6
Vt.	511	507	1	1.0	.3	.1	.2	.3	.3	.1	1.3	3
Mass.	5,737	5,363	221	7.7	25.0	3.1	4.5	8.4	4.7	3.2	96.4	141
R.I.	947	897	28	2.9	1.7	1.2	.5	.9	.6	.3	14.8	20
Conn.	3,108	2,799	217	4.5	4.7	3.1	1.9	5.0	2.1	1.8	67.6	124
Mid Atl	36,787	30,741	4,374	57.4	184.8	66.6	39.1	105.2	59.5	18.8	1,140.8	2,305
N.Y.	17,558	13,961	2,402	39.6	148.1	34.0	24.5	60.5	34.2	6.6	847.7	1,659
N.J.	7,365	6,127	925	8.4	23.4	24.4	9.9	29.5	12.8	2.9	201.0	492
Pa.	11,864	10,652	1,047	9.5	13.3	8.3	4.7	15.2	12.5	9.3	92.1	154
E. No. Cent.....	41,682	36,150	4,549	105.9	57.6	68.8	34.5	71.5	45.9	19.3	579.7	1,068
Ohio	10,798	9,597	1,077	12.2	9.9	7.4	5.5	13.1	7.3	31.5	64.5	120
Ind.	5,490	5,004	415	7.8	4.0	3.6	2.4	4.3	3.3	2.3	43.3	87
Ill.	11,427	9,233	1,675	16.3	28.6	43.9	18.6	35.7	24.0	7.0	343.7	636
Mich.	9,262	7,872	1,199	40.0	11.0	11.2	5.9	14.7	8.7	4.2	95.1	162
Wis.	4,706	4,443	183	29.5	4.1	2.7	2.2	3.7	2.6	2.2	33.1	63
W. No. Cent. ...	17,183	16,044	789	142.5	15.3	11.2	9.9	13.7	16.3	17.3	124.3	209
Minn.	4,076	3,936	53	35.0	4.8	2.7	2.8	3.7	6.3	5.9	25.7	32
Iowa	2,914	2,839	42	5.5	2.1	1.2	1.0	2.1	2.3	2.5	16.2	26
Mo.	4,917	4,346	514	12.3	4.3	4.0	2.6	4.1	3.5	3.2	22.8	52
N. Dak.	653	626	3	20.2	.3	.4	.2	.3	.3	.3	2.5	4
S. Dak.	691	640	2	45.0	.3	.3	.3	.2	.3	.4	2.3	4
Nebr.	1,570	1,490	48	9.2	1.1	.9	1.4	.9	1.0	1.4	15.1	28
Kans.	2,364	2,168	126	15.4	2.4	1.7	1.6	2.4	2.6	3.7	39.6	63
So. Atl.	36,959	28,659	7,852	118.7	50.5	56.5	25.1	46.2	44.7	28.5	277.5	1,194
Del.	594	488	96	1.3	1.0	.8	.4	1.1	.5	.2	5.3	10
Md.	4,217	3,159	958	8.0	14.5	11.0	4.8	13.7	15.1	4.1	28.8	65
D.C.	638	172	449	1.0	2.5	1.3	.8	.9	.3	.5	10.3	18
Va.	5,347	4,230	1,009	9.5	9.4	18.9	5.2	8.5	12.5	10.0	34.4	80
W. Va.	1,950	1,875	65	1.6	.9	1.3	.4	1.6	.6	.3	3.2	13
N.C.	5,882	4,458	1,319	64.7	3.2	2.5	3.2	4.7	3.6	2.4	21.2	57
S.C.	3,122	2,147	949	5.8	1.4	3.7	1.4	2.2	1.4	1.1	9.1	33
Ga.	5,463	3,947	1,465	7.6	4.3	2.8	3.4	4.3	6.0	2.3	20.1	61
Fla.	9,746	8,185	1,343	19.3	13.4	14.2	5.6	9.1	4.7	7.6	145.2	858
E. So. Cent.	14,666	11,702	2,869	22.5	7.6	5.7	4.8	8.6	6.7	5.1	34.2	120
Ky.	3,661	3,379	259	3.6	1.3	1.4	1.1	2.2	2.1	1.1	9.4	27
Tenn.	4,591	3,835	726	5.1	2.9	1.9	1.7	3.2	2.2	1.4	11.3	34
Ala.	3,894	2,873	996	7.6	1.5	1.0	1.4	2.0	1.8	1.3	8.4	33
Miss.	2,521	1,615	887	6.2	1.8	1.4	.7	1.2	.6	1.3	5.1	25
W. So. Cent. ...	23,747	18,599	3,527	231.0	32.5	20.3	14.7	28.8	19.0	46.7	1,228.1	3,160
Ark.	2,286	1,890	374	9.4	1.3	.9	.8	.8	.6	2.1	6.5	18
La.	4,206	2,912	1,238	12.1	3.3	2.6	1.5	2.9	1.7	10.9	20.5	99
Okla.	3,025	2,598	205	169.5	2.5	1.7	2.0	2.9	2.7	4.7	37.0	57
Tex.	14,229	11,196	1,710	40.1	25.5	15.1	10.5	22.2	14.0	29.1	1,164.1	2,986
Mt.	11,373	9,961	269	364.4	19.5	13.8	27.0	7.3	13.0	11.1	686.9	1,443
Mont.	787	740	2	37.3	.3	.5	.8	.2	.3	.3	5.2	10
Idaho	944	902	3	10.5	.9	.7	2.6	.3	.6	.4	23.5	37
Wyo.	470	446	3	7.1	.4	.3	.6	.2	.2	.2	10.8	24
Colo.	2,890	2,571	102	18.1	3.9	2.9	9.9	2.3	5.3	4.0	170.4	340
N. Mex.	1,303	978	24	106.1	1.4	1.2	1.3	.8	.7	1.0	188.7	477
Ariz.	2,718	2,241	75	152.7	6.8	3.3	4.1	2.1	2.4	1.9	229.0	441
Utah	1,461	1,383	9	19.3	2.7	.9	5.5	.8	1.3	2.1	36.6	60
Nev.	800	700	51	13.3	3.0	4.1	2.3	.6	2.1	1.1	22.7	54
Pac.	31,800	24,929	1,993	356.4	405.3	523.2	538.0	64.7	140.9	108.8	2,740.5	4,811
Wash.	4,132	3,779	106	60.8	18.1	24.4	26.4	4.0	13.1	9.8	90.8	120
Oreg.	2,633	2,491	37	27.3	8.0	4.3	8.4	1.9	4.4	5.6	45.5	66
Calif.	23,668	18,031	1,819	201.4	322.3	357.5	261.8	57.9	103.8	89.6	2,423.4	4,544
Alaska	402	310	14	64.1	.5	3.1	1.6	.2	1.5	.4	7.0	10
Hawaii	965	319	17	2.8	56.3	133.9	239.7	.6	18.0	3.5	173.8	71

[1]Includes Eskimo and Aleut.

[2]Persons of Spanish origin may be of any race.

Source: U.S. Bureau of the Census, 1980 Census of Population, Vol. 1, chapter B. Taken from *Statistical Abstract of the United States:* 1982-83, U.S. Government Printing Office, Washington, DC, December 1982, Table 36, p. 32

Table 2

Resident population, by age, sex, and race: 1970-1980.

(In thousands, except as indicated. 1970 and 1980 data based on enumerated population as of April 1. Other years based on estimated population as of July 1. Excludes Armed Forces overseas.)

Year, sex, and race	Total all years	Under 5 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years
1970, total[1] [2]	203,235	17,163	19,969	20,804	19,084	16,383	13,486	11,437	11,113	11,988
Male	98,926	8,750	10,175	10,598	9,641	7,925	6,626	5,599	5,416	5,823
Female	104,309	8,413	9,794	10,206	9,443	8,458	6,859	5,838	5,697	6,166
White	178,098	14,464	16,941	17,724	16,412	14,327	11,850	10,000	9,749	10,633
Male	86,906	7,396	8,656	9,056	8,314	6,966	5,869	4,942	4,798	5,207
Female	91,192	7,068	8,285	8,667	8,098	7,361	5,980	5,058	4,951	5,426
Black	22,581	2,434	2,749	2,812	2,425	1,816	1,429	1,254	1,196	1,199
Male	10,749	1,220	1,378	1,408	1,203	841	658	568	541	544
Female	11,832	1,214	1,371	1,404	1,222	975	771	685	656	655
1980, total[1] [3]	226,505	16,344	16,697	18,241	21,162	21,313	19,518	17,558	13,963	11,668
Male	110,032	8,360	8,538	9,315	10,752	10,660	9,703	8,676	6,860	5,708
Female	116,473	7,984	8,159	8,926	10,410	10,652	9,814	8,882	7,103	5,961
White[4]	194,779	13,425	13,725	15,103	17,686	18,079	16,668	15,164	12,126	10,113
Male[4]	94,960	6,887	7,038	7,733	9,010	9,106	8,369	7,569	6,016	4,992
Female[4]	99,819	6,537	6,687	7,369	8,675	8,973	8,299	7,595	6,110	5,121
Black[4]	26,624	2,452	2,503	2,687	3,000	2,741	2,334	1,899	1,465	1,258
Male[4]	12,582	1,236	1,262	1,351	1,497	1,309	1,091	876	666	569
Female[4]	14,042	1,216	1,242	1,336	1,503	1,433	1,244	1,023	800	688
1981, total	229,307	16,939	16,045	18,241	20,378	21,731	20,067	18,737	14,407	12,043
Male	111,423	8,667	8,204	9,321	10,363	10,914	9,995	9,273	7,087	5,896
Female	117,884	8,272	7,841	8,921	10,015	10,818	10,072	9,463	7,320	6,147
White[4]	196,627	13,799	13,153	15,051	16,956	18,347	17,073	16,127	12,489	10,432
Male[4]	95,877	7,081	6,745	7,710	8,642	9,268	8,584	8,062	6,205	5,155
Female[4]	100,750	6,718	6,409	7,341	8,313	9,079	8,489	8,064	6,284	5,277
Black	27,710	2,624	2,405	2,695	2,927	2,855	2,443	2,061	1,512	1,288
Male[4]	12,846	1,324	1,212	1,356	1,464	1,379	1,147	954	688	583
Female[4]	14,323	1,300	1,193	1,339	1,463	1,477	1,296	1,107	824	706
Percent:										
1970	100.0	8.4	9.8	10.2	9.4	8.1	6.6	5.6	5.5	5.9
1980[3]	100.0	7.2	7.4	8.1	9.3	9.4	8.6	7.8	6.2	5.2
1981, total	100.0	7.4	7.0	8.0	8.9	9.5	8.8	8.2	6.3	5.3
Male	100.0	7.8	7.4	8.4	9.3	9.8	9.0	8.3	6.4	5.3
Female	100.0	7.0	6.7	7.6	8.5	9.2	8.5	8.0	6.2	5.2
White	100.0	7.0	6.7	7.7	8.6	9.3	8.7	8.2	6.4	5.3
Black	100.0	9.7	8.9	9.9	10.8	10.5	9.0	7.6	5.6	4.7

NA Not available
x Not applicable.
[1] Includes other races, not shown separately
[2] The 1970 resident population count is 203,302,031; the difference of 66,733 is due to errors found after tabulations were completed.
[3] The data shown for April 1, 1980 are consistent with the *1980 Census of Population and Housing, Advance Reports*, PHC80-V total count of 226,504,825.
[4] The race data shown for April 1, 1980 have been modified.
Source: U.S. Bureau of the Census, Census of Population: 1970, Vol. 1, and Current Population Reports, Series P-25, No. 717. Taken from *Statistical Abstract of the U.S.*; 1982-83, U. S. Government Printing Office, Washington, DC, December 1982, Table 31, p. 27

45-49 years	50-54 years	55-59 years	60-64 years	65-74 years	75 years and over	5-13 years	14-17 years	18-24 years	16 years and over	18 years and over	Median age (yr.)
12,124	11,111	9,979	8,623	12,443	7,530	36,675	15,851	23,714	141,268	133,546	28.0
5,855	5,351	4,769	4,030	5,440	2,927	18,687	8,069	11,583	67,347	63,419	26.8
6,269	5,759	5,210	4,593	7,002	4,603	17,987	7,782	12,131	73,920	70,127	29.3
10,868	10,019	9,021	7,818	11,300	6,972	31,171	13,579	20,655	125,520	118,884	28.9
5,270	4,842	4,319	3,655	4,925	2,690	15,929	6,931	10,133	60,034	56,650	27.6
5,598	5,178	4,702	4,163	6,374	4,283	15,242	6,648	10,521	65,486	62,234	30.1
1,124	990	874	734	1,043	501	5,009	2,073	2,721	14,053	13,065	22.4
520	459	405	335	461	207	2,510	1,038	1,282	6,476	5,981	21.0
603	531	469	400	582	293	2,499	1,035	1,438	7,577	7,084	23.6
11,088	11,709	11,614	10,086	15,578	9,967	(NA)	(NA)	(NA)	(NA)	(NA)	30.0
5,388	5,620	5,481	4,669	6,755	3,547	(NA)	(NA)	(NA)	(NA)	(NA)	28.8
5,701	6,089	6,133	5,416	8,822	6,419	(NA)	(NA)	(NA)	(NA)	(NA)	31.3
9,695	10,362	10,395	9,078	14,045	9,116	(NA)	(NA)	(NA)	(NA)	(NA)	30.9
4,756	5,017	4,929	4,221	6,095	3,220	(NA)	(NA)	(NA)	(NA)	(NA)	29.6
4,939	5,345	5,466	4,857	7,950	5,896	(NA)	(NA)	(NA)	(NA)	(NA)	32.2
1,148	1,133	1,040	873	1,343	747	(NA)	(NA)	(NA)	(NA)	(NA)	24.9
518	506	468	386	567	281	(NA)	(NA)	(NA)	(NA)	(NA)	23.6
630	627	572	487	776	466	(NA)	(NA)	(NA)	(NA)	(NA)	26.2
10,985	11,545	11,600	10,335	15,893	10,361	30,656	15,565	30,176	174,327	166,147	30.3
5,342	5,546	5,474	4,782	6,892	3,668	15,671	7,940	15,191	83,316	79,146	29.1
5,643	5,999	6,126	5,553	9,000	6,693	14,984	7,626	14,985	91,011	87,002	31.6
9,574	10,186	10,360	9,299	14,322	9,459	25,196	12,914	25,397	115,514	144,718	31.2
4,701	4,939	4,917	4,322	6,221	3,325	12,916	6,601	12,848	72,751	69,279	29.9
4,873	5,246	5,443	4,977	8,102	6,135	12,281	6,312	12,549	78,764	75,439	32.5
1,148	1,130	1,046	887	1,363	785	4,570	2,263	4,049	18,895	17,712	25.2
517	503	466	391	571	292	2,302	1,137	1,972	8,678	8,084	23.9
631	628	579	496	791	493	2,268	1,126	2,077	10,217	9,628	26.5
6.0	5.5	4.9	4.2	6.1	3.7	18.0	7.8	11.7	69.5	65.7	(x)
4.9	5.2	5.1	4.5	6.9	4.4	(NA)	(NA)	(NA)	(NA)	(NA)	(x)
4.8	5.0	5.1	4.5	6.9	4.5	13.4	6.8	13.2	76.0	72.5	(x)
4.8	5.0	4.9	4.3	6.2	3.3	14.1	7.1	13.6	74.8	71.0	(x)
4.8	5.1	5.2	4.7	7.6	5.7	12.7	6.5	12.7	77.2	73.8	(x)
4.9	5.2	5.3	4.7	7.3	4.8	12.8	6.6	12.9	77.1	73.6	(x)
4.2	4.2	3.8	3.3	5.0	2.9	16.8	8.3	14.9	69.5	65.2	(x)

Table 3

Spanish-origin population, by age and sex: 1980.
[In thousands, except percent. As of April.]

Item	Total all years	Under 5 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years	55-59 years	60-64 years	65 years and over
Total	14,609	1,663	1,537	1,475	1,606	1,586	1,376	1,129	854	712	622	564	454	321	709
Male	7,280	848	783	747	827	819	697	558	416	345	300	270	217	147	305
Female	7,329	815	754	728	780	767	679	570	438	367	321	294	237	174	404
Percent Distribution															
Total	100.0	11.4	10.5	10.1	11.0	10.9	9.4	7.7	5.8	4.9	4.3	3.9	3.1	2.2	4.9
Male	100.0	11.6	10.8	10.3	11.4	11.3	9.6	7.7	5.7	4.7	4.1	3.7	3.0	2.0	4.2
Female	100.0	11.1	10.3	9.9	10.6	10.5	9.3	7.8	6.0	5.0	4.4	4.0	3.2	2.4	5.5

Source: U.S. Bureau of the Census, 1980 Census of Population, Vol. 1, chapter B (PC80-1B). Taken from *Statistical Abstract of the U.S.:* 1982-83, U.S. Government Printing Office, Washington, DC, December 1982, Table 40, p. 35.

Table 4

Number and percent distribution of the total American Indian and Alaska Native population for reservation States and U.S. All races by age, 1980 census data.

	American Indian & Alaska Native		U.S. All Races	
	Number	Percent[1]	Number	Percent[1]
Total	1,240,384	100.000	226,504,825	100.000
Under 5 years	135,239	10.903	16,344,407	7.216
5 to 9 years	131,735	10.621	16,697,134	7.372
10 to 14 years	140,028	11.289	18,240,919	8.053
15 to 19	150,897	12.165	21,161,667	9.343
20 to 24 years	128,304	10.344	21,312,557	9.409
25 to 29 years	107,131	8.637	19,517,672	8.617
30 to 34 yeart	91,175	7.351	17,557,957	7.752
35 to 39 years	71,100	5.732	13,963,008	6.165
40 to 44 years	58,755	4.737	11,668,239	5.151
45 to 49 years	49,460	3.988	11,088,383	4.895
50 to 54 years	43,954	3.544	11,708,984	5.169
55 to 59 years	38,270	3.085	11,614,054	5.128
60 to 64 years	29,234	2.357	10,085,711	4.453
65 to 69 years	24,737	1.994	8,780,844	3.877
70 to 74 years	17,243	1.390	6,796,742	3.001
75 to 79 years	11,871	0.957	4,792,597	2.116
80 to 84 years	6,105	0.492	2,934,229	1.295
85 years & over	5,146	0.415	2,239,721	0.989

[1]Percentages may not add to the totals due to rounding
Source: Taken from FY 1984 Budget Appropriation, Indian Health Service "Chart Series" Tables. Population Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD. March 1983

Table 5

Social and economic characteristics of population, by race and Spanish origin, 1980.

[In thousands, except as indicated. As of April. Provision data based on the Early National Sample from the 1980 census.]

Characteristics	Race				Characteristics	Race			
	White	Black	Asian and Pacific Islander	Spanish origin[1]		White	Black	Asian and Pacific Islander	Spanish origin[1]
FAMILY TYPE					YEARS OF SCHOOL COMPLETED				
Total families	50,448	6,093	828	3,288	Persons 25 years and over	114,301	13,189	2,110	6,727
With own children[2]	24,926	3,714	509	2,229	Elementary: 0-8 years	19,013	3,651	360	2,749
Married couple	43,327	3,466	700	2,463	High school:				
With own children[2]	21,222	2,000	449	1,692	1-3 years	16,736	2,867	185	1,067
Female householder[3]	5,590	2,273	90	651	4 years	40,628	3,802	506	1,607
With own children[2]	3,136	1,565	51	472	College:				
Male householder[3]	1,531	354	38	174	1-3 years	18,307	1,763	371	788
With own children[2]	568	149	10	64	4 or more years	19,617	1,106	686	515
Percent distribution:					Percent distribution:				
Total families	100.0	100.0	100.0	100.0	Elementary: 0-8 years	16.6	27.7	17.1	40.9
With own children[2]	49.4	61.0	61.5	67.8	High school:				
Married couple	85.9	56.9	84.5	74.9	1-3 years	14.6	21.7	8.8	15.9
With own children[2]	42.1	32.8	54.2	51.5	4 years	35.5	28.8	24.1	23.9
Female householder[3]	11.1	37.3	10.9	19.8	College:				
With own children[2]	6.2	25.7	6.2	14.4	1-3 years	16.0	13.4	17.6	11.7
Male householder[3]	3.0	5.8	4.6	5.3	4 or more years	17.2	8.4	32.5	7.7
With own children[2]	1.1	2.4	1.2	1.9	LABOR FORCE STATUS				
FAMILY INCOME, 1979					Persons 16 years old and over	145,447	18,307	2,698	9,580
Total families	50,448	65,093	826	3,288	In labor force	90,507	10,838	1,788	6,075
Less than $5,000	2,787	1,183	68	454	Percent	62.2	59.2	66.3	63.4
$5,000-$9,999	6,057	1,281	91	622	In civilian labor force	89,340	10,574	1,751	5,974
$10,000-$14,999	7,223	1,020	103	600	Employed	84,134	9,301	1,666	5,421
$15,000-$19,999	7,760	817	104	500	Unemployed	5,205	1,273	86	553
$20,000-$24,999	7,516	613	108	399	Percent	5.8	12.0	4.9	9.3
$25,000-$34,999	10,259	720	162	477	Males 16 years old and over	69,705	8,388	1,290	4,719
$35,000-$49,999	5,724	344	122	186	In labor force	52,949	5,494	964	3,701
$50,000 or more	3,122	115	71	78	Percent	76.0	66.7	76.3	78.4
Median income (dol)	20,840	12,618	22,075	14,711	In civilian labor force	51,881	5,363	950	3,607
Percent distribution:					Employed	48,837	4,675	907	3,294
Total	100.0	100.0	100.0	100.0	Unemployed	3,044	688	42	314
Less than $5,000	5.5	19.4	8.2	13.8	Percent	5.9	12.8	4.4	8.7
$5,000-$9,999	12.0	21.0	11.0	18.9	Females 16 years old and over	75,742	9,919	1,406	4,861
$10,000-$14,999	14.3	16.7	12.4	18.2	In labor force	37,558	5,244	804	2,375
$15,000-$19,999	15.4	13.4	12.6	15.2	Percent	49.6	52.9	57.1	48.9
$20,000-$24,999	14.9	10.1	13.0	12.1	In civilian labor force	37,459	5,211	802	2,367
$25,000-$34,999	20.3	11.8	19.6	13.6	Employed	35,298	4,626	758	2,128
$35,000-$49,999	11.3	5.6	14.7	5.7	Unemployed	2,161	585	43	239
$50,000 or more	6.2	1.9	8.6	2.4	Percent	5.8	11.2	5.4	10.1
Total persons	189,079	26,505	3,698	14,589					

[1] Persons of Spanish origin may be of any race.
[2] Children under 18 years old
[3] With no spouse present.
Source: U.S. Bureau of the Census, 1980 Census of Population and Housing, Supplementary Report, series PHC 80-S1-1.
Taken from *Statistical Abstract of the U.S.*: 1982-83, U.S. Government Printing Office, Washington, DC, December 1982,
Table 41, p. 35.

Table 6

Persons below poverty level, by age, region, race, and Spanish origin: 1981.

[As of March 1981 Based on Current Population Survey. Based on householder concept and restricted to primary families.]

Age and Region	Number Below Poverty Level (1,000)				Percent Below Poverty Level			
	All races[1]	White	Black	Spanish origin[2]	All races[1]	White	Black	Spanish origin[2]
Total	31,822	21,553	9,173	3,713	14.0	11.1	34.2	26.5
Under 16 years	11,223	7,009	3,777	1,727	20.5	15.7	45.8	36.3
16 to 21 years	3,867	2,477	1,242	494	15.9	12.2	36.8	27.8
22 to 44 years	8,754	6,154	2,251	1,010	11.1	9.1	25.2	20.1
45 to 64 years	4,125	2,934	1,083	336	9.3	7.5	25.8	17.8
65 years and over ...	3,853	2,978	820	146	15.3	13.1	39.0	25.7
Northeast	5,815	4,102	1,629	931	11.9	9.5	33.2	37.7
North Central	7,142	5,205	1,759	164	12.3	10.0	32.4	16.5
South	13,256	7,855	5,192	1,311	17.4	12.9	37.1	27.4
West	5,609	4,391	594	1,307	12.7	11.5	23.7	22.6

[1]Includes races not shown separately

[2]Persons of Spanish origin may be of any race

Source: U.S. Bureau of the Census, Current Population Reports, series P-60, No. 134, and earlier issues. Taken from *Statistical Abstract of the United States* 1982-83, U.S. Government Printing Office, Washington, DC, December 1982, Table 729, p. 442

Table 7

Live births, birth rates, and fertility rates, by race of child: United States, specified years 1940–60 and each year 1965–80.

[Birth rates per 1,000 population in specified group. Fertility rates per 1,000 women aged 15–44 years in specified group. Population enumerated as of April 1 for census years and estimated as of July 1 for all other years. Beginning 1970 excludes births to nonresidents of the United States.]

Year	Number				Birth rate				Fertility rate			
	All races	White	All other		All races	White	All other		All races	White	All other	
			Total	Black			Total	Black			Total	Black
Registered births												
1980[1]	3,612,258	2,898,732	713,526	589,616	15.9	14.9	22.5	22.1	68.4	64.7	88.6	88.1
1979[1]	3,494,398	2,808,420	685,978	577,855	15.6	14.5	22.2	22.0	67.2	63.4	88.5	88.3
1978[1]	3,333,279	2,681,116	652,163	551,540	15.0	14.0	21.6	21.3	65.5	61.7	87.0	86.7
1977[1]	3,326,632	2,691,070	635,562	544,221	15.1	14.1	21.6	21.4	66.8	63.2	87.7	88.1
1976[1]	3,167,788	2,567,614	600,174	514,479	14.6	13.6	20.8	20.5	65.0	61.5	85.8	85.8
1975[1]	3,144,198	2,551,996	592,202	511,581	14.6	13.6	21.0	20.7	66.0	62.5	87.7	87.9
1974[1]	3,159,958	2,575,792	584,166	507,162	14.8	13.9	21.2	20.8	67.8	64.2	89.8	89.7
1973[1]	3,136,965	2,551,030	585,935	512,597	14.8	13.8	21.7	21.4	68.8	64.9	93.4	93.6
1972[1]	3,258,411	2,655,558	602,853	531,329	15.6	14.5	22.8	22.5	73.1	68.9	99.5	99.9
1971[2]	3,555,970	2,919,746	636,224	564,960	17.2	16.1	24.6	24.4	81.6	77.3	109.1	109.7
1970[2]	3,731,386	3,091,264	640,122	572,362	18.4	17.4	25.1	25.3	87.9	84.1	113.0	115.4
1969[2]	3,600,206	2,993,614	606,592	543,132	17.9	16.9	24.5	24.4	86.1	82.2	111.6	112.1
1968[2]	3,501,564	2,912,224	589,340	531,152	17.6	16.6	24.2	24.2	85.2	81.3	111.9	112.7
1967[3]	3,520,959	2,922,502	598,457	543,976	17.8	16.8	25.0	25.1	87.2	82.8	117.1	118.5
1966[2]	3,606,274	2,993,230	613,044	558,244	18.4	17.4	26.1	26.2	90.8	86.2	123.5	124.7
1965[2]	3,760,358	3,123,860	636,498	581,126	19.4	18.3	27.6	27.7	96.3	91.3	131.9	133.2
1960[2]	4,257,850	3,600,744	657,106	602,264	23.7	22.7	32.1	31.9	118.0	113.2	153.6	153.5
Births adjusted for underregistration												
1955	4,097,000	3,485,000	613,000	—	25.0	23.8	34.5	—	118.3	113.7	154.3	—
1950	3,632,000	3,108,000	524,000	—	24.1	23.0	33.3	—	106.2	102.3	137.3	—
1945	2,858,000	2,471,000	388,000	—	20.4	19.7	26.5	—	85.9	83.4	106.0	—
1940	2,559,000	2,199,000	360,000	—	19.4	18.6	26.7	—	79.9	77.1	102.4	—

[1]Based on 100 percent of births in selected States and on a 50-percent sample of births in all other States; see Technical notes.
[2]Based on a 50-percent sample of births.
[3]Based on a 20- to 50-percent sample of births.
Note: Rates for 1971–79 have been revised
Source: National Center for Health Statistics: Advance report of final natality statistics, 1980. *Monthly Vital Statistics Report*, Vol. 31, No. 8 supplement, November 30, 1982, Table 1, p. 9.

Table 8

Birth rates by Hispanic origin of mother, and by race of child for mothers of non-Hispanic origin:
22 reporting States, 1980.

[Rates per 1,000 population in specified group]

State of residence	All origins[1]	Origin of mother							
		Hispanic					Non-Hispanic[1]		
		Total	Mexican	Puerto Rican	Cuban	Other Hispanic[2]	Total[3]	White	Black
All reporting States ...	16.4	23.5	26.6	20.3	9.6	20.0	15.5	14.2	22.9
Arizona	18.4	26.3	27.9	14.3	13.1*	11.8	16.9	15.3	26.8
Arkansas	16.3	13.7	7.3	13.3*	24.3*	25.3	16.3	14.6	24.8
California	17.0	25.3	27.7	13.2	9.5	16.2	15.1	13.8	22.4
Colorado	17.2	21.5	15.7	16.0	11.4*	31.4	16.6	16.1	23.2
Florida	13.5	13.7	22.8	15.7	9.6	18.6	13.5	11.4	25.4
Georgia	16.9	10.4	7.5	17.9	9.6	11.7	17.0	14.6	23.3
Hawaii	18.8	25.1	24.7	26.9	45.9*	24.2	18.3	12.5	33.1
Illinois.............	16.6	28.0	27.3	20.0	11.2	48.4	16.0	14.2	24.7
Indiana............	16.1	19.1	19.9	19.4	11.0	16.7	16.1	15.4	23.3
Kansas............	17.2	20.3	20.0	29.1	7.6*	20.4	17.1	16.4	27.2
Maine.............	14.6	9.8	5.8*	14.0*	14.6*	10.6	14.7	14.5	26.1
Mississippi	19.0	4.9	3.0	13.2*	—	7.6	19.1	15.3	25.9
Nebraska	17.4	22.9	25.2	8.0*	11.0*	15.0	17.3	16.8	27.1
Nevada	16.6	20.6	21.1	9.2*	6.7	24.2	16.4	15.1	25.8
New Jersey	13.2	20.8	14.7	25.8	10.6	18.8	12.6	11.2	21.1
New Mexico	20.0	18.4	18.3[4]	14.9	6.6*	18.3[4]	21.0	19.0	24.1
New York...........	13.6	19.9	16.5	20.0	8.0	21.6	13.0	11.6	19.8
North Dakota	18.4	13.3	13.8	—	—	15.6	18.4	17.5	42.2
Ohio	15.7	18.0	16.4	23.1	7.4	16.3	15.6	14.9	21.8
Texas	19.2	26.7	28.3	17.4	9.5	5.8	17.2	16.1	22.7
Utah	28.6	28.1	24.8	6.7*	81.3	35.1	28.6	28.5	22.7
Wyoming	22.5	27.1	25.7	27.9*	—	30.1	22.2	21.7	32.3

[1]Includes origin not stated
[2]Includes Central and South American and other and unknown Hispanic.
[3]Includes races other than white and black
[4]Rate is births to Mexican and "other Hispanic" mothers per 1,000 Mexican and "other Hispanic" population; see Technical notes
*Based on fewer than 20 births.
Source: National Center for Health Statistics: S.J. Ventura: Births of Hispanic Parentage, 1980. *Monthly Vital Statistics Report.* Vol. 32, No 6 Supp DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD. September 1983, Table 9, p 12.

Table 9

Number and rate[1] of live births for Indians and Alaska Natives in reservation States, and U.S.
All races, 1954–1979.

[Rates per 1,000 population]

Calendar Year	Indian and Alaska Native		Indian (Reserv. States)		Alaska Native		U.S. All Races		U.S. Other than White
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Rate
1979	31,843	—	29,803	—	2,040	—	3,494,398	—	—
1978	29,857	31.8	27,922	32.1	1,935	28.4	3,329,000	15.3	22.1
1977	28,198	31.5	26,325	31.7	1,873	28.0	3,326,632	15.4	21.9
1976	26,748	30.9	24,989	31.0	1,759	29.1	3,167,788	14.8	21.1
1975	25,457	30.7	23,695	30.7	1,762	29.9	3,144,198	14.8	21.2
1974	24,301	30.7	22,653	30.7	1,648	31.4	3,159,958	14.9	21.4
1973	23,757	31.1	22,087	31.1	1,670	30.9	3,136,965	14.9	21.9
1972	23,752	31.8	22,154	31.8	1,598	31.8	3,258,411	15.6	22.9
1971	23,806	32.4	22,092	32.4	1,714	32.1	3,555,970	17.2	24.7
1970	22,746	32.4	21,100	32.4	1,646	32.1	3,731,386	18.4	25.1
1969	21,593	32.3	20,074	32.3	1,519	31.4	3,600,206	17.8	24.4
1968	21,602	32.2	20,066	32.2	1,536	32.3	3,501,564	17.5	24.2
1967	20,658	33.0	18,948	32.8	1,710	35.8	3,520,959	17.8	25.0
1966	21,100	34.5	19,154	34.1	1,946	39.7	3,606,274	18.4	26.1
1965	22,370	36.4	20,352	36.0	2,018	42.3	3,760,358	19.4	27.6
1964	22,782	38.4	20,794	37.9	1,988	44.4	4,027,490	21.0	29.1
1963	22,274	39.5	20,142	38.9	2,132	45.7	4,098,020	21.7	29.7
1962	21,866	40.8	19,770	40.2	2,096	47.2	4,167,362	22.4	30.5
1961	21,664	41.7	19,570	41.2	2,094	46.8	4,268,326	23.3	31.6
1960	21,154	42.1	19,188	41.7	1,966	46.4	4,257,850	23.7	32.1
1959	20,520	41.4	18,616	40.9	1,904	46.7	4,244,796	24.0	32.9
1958	19,371	40.3	17,428	39.7	1,943	47.4	4,203,812	24.3	33.0
1957	18,814	39.1	16,982	38.2	1,832	49.3	4,254,784	25.0	33.9
1956	17,947	38.2	26,040	37.2	1,907	49.5	4,168,090	24.9	33.9
1955	17,028	37.5	15,304	36.5	1,724	49.5	4,047,295	24.6	33.1
1954	16,691	—	15,042	—	1,649	—	—	—	—

[1]Indian and Alaska Native rates are 3-year averages centered in the year specified for reservation States. All other rates are
based on single year data. Estimated population methodology for the Indian and Alaska Native population revised for 1976.
Maine, New York and Pennsylvania included as reservation States beginning in 1979.
Source: Taken from FY 1984 Budget Appropriation, Indian Health Service "Chart Series" Tables. Vital Events Branch, Office
of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD. December 1981.

Table 10

Fertility rates by Hispanic origin of mother, and by race of child for mothers of non-Hispanic origin: 22 reporting States, 1980.

[Rates per 1,000 women aged 15-44 years in specified group]

State of residence	All origins[1]	Origin of mother							
		Hispanic					Non-Hispanic[1]		
		Total	Mexican	Puerto Rican	Cuban	Other Hispanic[2]	Total[3]	White	Black
All reporting States ...	70.2	95.4	111.3	77.0	41.9	75.3	67.1	62.4	90.7
Arizona	80.1	110.3	117.6	60.2	*55.1	47.1	74.0	67.4	115.2
Arkansas	74.2	58.5	32.7	*50.7	*107.1	98.6	74.3	66.8	111.8
California	70.8	102.1	114.6	52.9	39.7	59.1	63.1	58.9	86.3
Colorado	67.9	87.0	63.9	63.3	*45.7	125.4	65.4	63.4	90.8
Florida	64.1	58.8	103.4	64.3	42.8	73.3	64.7	56.5	102.1
Georgia	69.6	42.5	32.0	77.0	40.3	43.9	69.9	61.1	92.1
Hawaii	78.9	103.8	100.0	124.9	*206.9	95.7	76.9	50.5	178.9
Illinois.......	71.3	115.2	117.8	76.0	45.5	182.9	68.6	62.7	95.9
Indiana.	69.1	80.5	87.0	78.7	41.8	64.7	68.9	66.7	93.9
Kansas	76.9	88.5	89.3	130.6	*31.8	78.8	76.5	73.6	114.6
Maine....	64.8	41.6	*27.9	*60.6	*61.2	42.1	64.9	64.4	139.1
Mississippi	83.9	20.9	13.6	*52.2	—	30.6	84.6	68.1	113.8
Nebraska	77.4	98.4	111.4	*35.7	*50.6	55.4	77.0	75.2	107.6
Nevada	68.4	83.6	88.0	*38.8	28.4	91.8	67.3	62.9	97.8
New Jersey	57.4	79.4	61.2	97.2	43.2	70.3	55.6	50.7	80.1
New Mexico	84.1	75.5	75.6[4]	62.7	*27.8	75.6[4]	89.3	82.0	104.3
New York..........	58.5	73.9	68.2	74.5	36.2	77.4	56.6	52.4	74.2
North Dakota	82.4	55.0	57.9	—	—	61.5	82.6	78.9	206.2
Ohio	67.5	74.8	71.8	93.0	31.3	64.9	67.5	64.9	87.2
Texas	81.0	112.2	119.7	72.8	37.7	22.8	72.7	68.7	92.1
Utah	123.0	119.5	109.9	*27.9	242.1	139.6	123.2	122.8	107.6
Wyoming	94.8	118.2	115.2	*111.1	—	124.9	93.5	91.6	145.4

[1]Includes origin not stated
[2]Includes Central and South American and other and unknown Hispanic.
[3]Includes races other than white and black
[4]Rate is births to Mexican and "other Hispanic" mothers per 1,000 Mexican and "other Hispanic" population, see Technical notes
*Based on fewer than 20 births
Source National Center for Health Statistics. S J Ventura Births of Hispanic Parentage, 1980 *Monthly Vital Statistics Report* Vol 32, No 6 Supp DHHS Pub No (PHS) 83-1120 Public Health Service, Hyattsville, MD September 1983, Table 10, p 13

Table 11

Total fertility rate and intrinsic rate of natural increase: 1940-1979.

[Excludes Alaska prior to 1959 and Hawaii prior to 1960. Prior to 1960, based on births adjusted for underregistration, thereafter, registered births only. Beginning 1970, excludes births to nonresidents of United States. The *total fertility rate* is the number of births that 1,000 women would have in their lifetime if, at each year of age, they experienced the birth rates occurring in the specified year. A total fertility rate of 2,110 represents "replacement level" fertility for the total population under current mortality conditions (assuming no net immigration). The *intrinsic rate of natural increase* is the rate that would eventually prevail if a population were to experience, at each year of age, the birth rates and death rates occurring in the specified year and if those rates remained unchanged over a long period of time. Minus sign (−) denotes decrease]

Year	Total Fertility Rate			Intrinsic Rate of Natural Increase			Year	Total Fertility Rate			Intrinsic Rate of Natural Increase		
	Total	White	Black and other	Total	White	Black and other		Total	White	Black and other	Total	White	Black and other
1940-44 ..	2,523	2,460	3,010	4.6	3.9	9.8	1968 ..	2,464	2,366	3,108	5.9	4.2	16.0
1945-49 ..	2,985	2,916	3,485	11.7	10.9	17.2	1969 ..	2,456	2,360	3,061	5.7	4.1	15.4
1950-54 ..	3,337	3,221	4,185	16.8	15.4	25.7	1970 ..	2,480	2,385	3,067	6.0	4.5	14.4
1955-59 ..	3,690	3,549	4,716	21.1	19.5	30.7	1971 ..	2,275	2,168	2,933	2.8	1.0	12.8
1960-64 ..	3,449	3,326	4,326	18.6	17.1	27.7	1972 ..	2,022	1,918	2,651	−1.7	−3.7	8.9
1965-69 ..	2,622	2,512	3,362	8.2	6.4	18.6	1973 ..	1,896	1,798	2,474	−4.2	−6.1	6.1
1970-74 ..	2,106	2,007	2,700	−.4	−2.2	9.4	1974 .	1,857	1,768	2,377	−5.0	−6.8	4.6
1975-79 ..	1,810	1,717	2,334	−5.8	−7.8	4.1	1975 ..	1,799	1,708	2,322	−6.1	−8.1	3.7
							1976 ..	1,768	1,679	2,276	−6.7	−8.6	3.0
1965	2,913	2,783	3,808	12.1	10.3	23.1	1977 ..	1,826	1,735	2,343	−5.4	−7.4	4.3
1966	2,721	2,603	3,532	9.7	7.9	20.4	1978 ..	1,800	1,704	2,334	−6.0	−8.0	4.1
1967	2.558	2,447	3,299	7.4	5.6	18.2	1979 ..	1,856	1,758	2,395	−4.7	−6.8	5.2

Source: U.S: National Center for Health Statistics. Vital Statistics of the U.S., annual and unpublished data. Taken from U.S Bureau of the Census, *Statistical Abstract of the U.S.* 1982-83, U.S. Government Printing Office, Washington, DC December 1982. Table 85, p. 60

Table 12

Unwanted births of all mothers, 15-44 years old: 1973 and 1976.

[Data represent the birth experience to date of all mothers 15-44 years old who have been married or are single with children of their own in the household. From the 1973 and 1976 National Survey of Family Growth; based on a multi-stage area probability sample. Data are subject to sampling variability.]

Characteristic	1973				1976					
			Unwanted births[2]				Unwanted births[2]			
	Number of mothers (1,000)	Total live births[1] (1,000)	Number (1,000)	Percent	Number of mothers (1,000)	Total live births[1] (1,000)	Number (1,000)	Percent	All births per mother	Unwanted[2] births per mother
Total mothers[3]	25,803	68,184	8,910	13.1	27,055[4]	67,849[4]	8,125	12.0	2.51	.30
Race:										
White	22,182	57,551	6,068	10.5	22,837	56,238	5,350	9.5	2.46	.23
Black	3,359	9,984	2,783	27.9	3,726	10,525	2,716	25.8	2.82	.73
Education:										
Less than high school	2,622	9,123	1,501	16.5	2,187	7,274	1,264	17.4	3.33	.58
High school: 1-3 years	5,697	16,884	3,024	17.9	5,478	15,543	2,405	15.5	2.84	.44
4 years	12,161	29,917	3,307	11.1	12,651	30,405	3,391	11.2	2.40	.27
College: 1-3 years	3,182	7,585	734	9.7	3,763	8,391	776	9.3	2.23	.21
4 years or more	2,140	4,675	344	7.4	2,925	6,114	286	4.7	2.09	.10
Currently married mothers[3] ...	21,816	57,524	6,418	11.2	22,253[4]	55,900[4]	5,516	9.9	2.51	.25
Race:										
White	19,764	51,391	5,055	9.8	19,921	49,453	4,299	8.7	2.48	.22
Black	1,822	5,561	1,331	23.9	1,927	5,533	1,177	21.3	2.87	.61
Education:										
Less than high school	1,948	6,846	838	12.2	1,663	5,584	832	14.9	3.36	.50
High school: 1-3 years	4,482	13,274	2,114	15.9	3,951	11,226	1,320	11.8	2.84	.33
4 years	10,646	26,494	2,586	9.8	10,741	26,120	2,547	9.8	2.43	.24
College: 1-3 years	2,816	6,722	602	9.0	3,244	7,381	597	8.1	2.28	.18
4 years or more	1,924	4,187	279	6.7	2,613	5,503	219	4.0	2.11	.08

[1]Multiple births counted only once.
[2]All births which mothers report as "not wanted" or "probably not wanted" at time of becoming pregnant
[3]Includes races not shown separately
[4]Includes education not reported
Source: U.S. National Center for Health Statistics. Wanted and Unwanted Births Reported by Mothers, 15-44 Years of Age United States, 1973 and 1976: Advanced Data from Vital and Health Statistics, HRA 77-1250; and unpublished data. Taken from U.S. Bureau of the Census, Statistical Abstract of the United States: 1982-83, U.S. Government Printing Office, Washington, DC December 1982, Table 99, p. 67

Table 13

Contraceptive use by currently married women 15-44 years old, by age, race, and method of contraception: 1965 to 1976.
[1965 data from National Fertility Survey; 1973 and 1976 data.]

Race and Method of Contraception	Total, 15-44 years old			15-29 years old			30-44 years old		
	1965	1973	1976	1965	1973	1976	1965	1973	1976
White Women									
Currently married (1,000)	23,427	24,249	24,795	9,166	10,963	11,218	14,261	13,286	13,577
Percent using contraception	64.1	70.5	68.8	63.4	70.7	70.0	64.5	70.4	67.8
Percent distribution of users of contraception . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wife sterilized	6.5	11.6	13.9	2.8	5.7	6.1	8.7	16.5	20.5
Husband sterilized	5.5	11.9	14.2	3.2	5.6	6.0	7.0	17.1	21.1
Pill	24.0	36.6	32.9	42.4	52.9	50.6	12.8	21.2	17.8
Intra-uterine device	1.1[1]	9.4	9.2	1.5[1]	11.9	10.5	.8[1]	7.4	8.1
Diaphragm	10.4	3.6	4.4	6.6	2.6	4.1	12.8	4.4	4.6
Condom	22.4	14.1	10.9	19.2	10.5	9.7	24.4	17.1	11.9
Foam	3.1	5.0	4.2	4.5	5.3	4.8	2.2	4.7	3.8
Rhythm	11.5	4.1	5.1	8.0	2.0	4.0	13.7	5.9	6.1
All other	15.5	4.8	5.3	11.9	3.5	4.3	17.7	5.9	6.1
Black Women									
Currently married (1,000)	2,091	2,081	2,169	(NA)	964	993	(NA)	1,117	1,177
Percent using contraception	56.2	60.0	58.6	62.2	63.7	61.0	51.1	56.8	58.5
Percent distribution of users of contraception . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wife sterilized	15.3	22.7	18.7	7.4	9.8	8.6	23.4	35.2	27.9
Husband sterilized	.6[1]	1.7[1]	3.0[1]	.4[1]	.7[1]	.3[1]	.7[1]	2.7[1]	5.4[1]
Pill	21.6	43.8	38.0	30.9	63.9	56.0	12.3	24.3	21.5
Intra-uterine device	2.8	12.7	10.6	4.8	13.1	9.1	.7	12.4	11.9
Diaphragm	5.0	2.0[1]	3.0[1]	3.3	1.2[1]	1.4[1]	6.7	2.8[1]	4.5[1]
Condom	17.4	5.3	7.9	18.7	3.1[1]	8.4	16.0	7.5	7.4
Foam	6.3	5.0	6.5	8.1	3.5	4.9	4.5	6.6	8.0
Rhythm	2.6	1.3[1]	2.4[1]	2.9	1.6[1]	3.1[1]	2.2	.9[1]	1.8[1]
All other	28.5	5.3	10.0	23.5	3.1	8.3	33.5	7.8	11.6

NA—Not available.
[1]Figure does not meet standards of reliability or precision
Source: 1) "Trends in Contraceptive Practice; 1965-1973." In Alan Guttmacher Institute, *Family Planning Perspectives,* vol. 8,
No. 2, 1976. 2) National Center for Health Statistics: Vital and Health Statistics, Series 23, No. 10, DHHS Pub. No. 82-1986
Taken from U.S. Bureau of the Census, *Statistical Abstract of the United States* 1982-83. U.S. Government Printing Office,
Washington, DC December, 1982. Table 100, p. 68

Table 14

Age-adjusted death rates by race and sex: death registration States, selected years 1900-30, and United States selected years 1940-80.

Area and year	Total			White			All Other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rates per 1,000 population								
UNITED STATES									
1980	5.9	7.8	4.3	5.6	7.5	4.1	7.7	10.2	5.8
1970[1]	7.1	9.3	5.3	6.8	8.9	5.0	9.8	12.3	7.7
1960	7.6	9.5	5.9	7.3	9.2	5.6	10.5	12.1	8.9
1950	8.4	10.0	6.9	8.0	9.6	6.5	12.3	13.6	10.9
1940	10.8	12.1	9.4	10.2	11.6	8.8	16.3	17.6	15.0
DEATH-REGISTRATION STATES[2]									
1930	12.5	13.5	11.3	11.7	12.8	10.6	20.1	21.0	19.2
1920	14.2	14.7	13.8	13.7	14.2	13.1	20.6	20.4	21.0
1910	15.8	16.9	14.6	15.6	16.7	14.4	24.1	24.8	23.2
1900	17.8	18.6	17.0	17.6	18.4	16.8	27.8	28.7	27.1

(Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940.)
[1]Excludes deaths of nonresidents of the United States
[2]Increased in number from 10 States and the District of Columbia in 1900 to the entire coterminous United States in 1933
Source: Compiled and abstracted by CHESS from 1) National Center for Health Statistics: Vital Statistics of the United States, 1973, vol. II, Mortality, Part A. 2) Department of Health, Education, and Welfare *Monthly Vital Statistics Report,* Summary Report, Final Mortality Statistics, 1980, vol. 32, No. 4

Table 15

Age-adjusted mortality rates
American Indians and Alaska Natives in reservation States and selected U.S. populations by race, 1979.
[Number of deaths per 100,000 population]

	Indians and Alaska Natives	United States			Ratio of Indians to U.S. All Races
		All Races	White	All Other	
All Causes	770.2	588.8	563.4	776.3	1.3
Major cardiovascular disease	219.1	259.3	252.6	313.6	0.8
Diseases of heart	173.2	203.5	199.8	232.8	0.9
Cerebrovascular disease	38.7	42.5	39.8	65.1	0.9
Atherosclerosis	5.2	5.7	5.7	5.6	0.9
Hypertension	2.1	1.9	1.6	5.1	1.1
Accidents	140.7	43.7	42.9	50.5	3.2
Motor vehicle	79.3	23.7	24.3	21.5	3.3
All Other	61.4	20.0	18.6	29.0	3.1
Malignant neoplasms	78.9	133.2	130.2	159.0	0.6
Chronic liver disease and cirrhosis	54.2	12.2	11.1	20.1	4.4
Homicide	25.5	10.4	6.5	36.0	2.5
Pneumonia and influenza	23.1	11.4	10.7	16.1	2.0
Diabetes mellitus	22.8	10.0	9.0	18.5	2.3
Suicide	21.8	11.9	12.4	7.9	1.8
Tuberculosis, all forms	4.4	0.7	0.4	2.5	6.3
Chronic obstructive pulmonary diseases and allied conditions	8.7	14.9	15.3	10.7	0.6

Source: Monthly Vital Statistics Report, NCHS, DHHS Pub. No. (PHS) 82-1120, vol. 31, No. 6.
Taken from FY 1984 Budget Appropriation Indian Health Service "Chart Series" Tables. Vital Events Branch, Office of Program Statistics. Division of Resource Coordination. Indian Health Service, Rockville, MD, November 1982

Table 16

Ratio of age-adjusted death rates for the 15 leading causes of death, by sex and race: United States, 1980

Rank[1]	Cause of death (Ninth Revision International Classification of Diseases, 1975)	Ratio of—	
		Male to female	Black to white
. . .	All causes	1.79	1.50
1	Diseases of heart	1.99	1.29
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	1.51	1.32
3	Cerebrovascular diseases	1.19	1.80
4	Accidents and adverse effects	2.93	1.23
	Motor vehicle accidents	2.90	0.84
	All other accidents and adverse effects	2.96	1.75
5	Chronic obstructive pulmonary diseases and allied conditions	2.93	0.76
6	Pneumonia and influenza	1.77	1.57
7	Diabetes mellitus	1.02	2.23
8	Chronic liver disease and cirrhosis	2.16	1.96
9	Atherosclerosis	1.32	1.14
10	Suicide	3.33	0.52
11	Homicide and legal intervention	3.86	5.88
12	Certain conditions originating in the perinatal period[2]	1.27	2.43
13	Nephritis, nephrotic syndrome, and nephrosis	1.58	3.21
14	Congenital anomalies[2]	1.16	1.13
15	Septicemia	1.45	2.82

[1]Rank based on number of deaths; see Technical notes
[2]Inasmuch as deaths from these causes occur mainly among infants, ratios are based on 1980 infant mortality rates instead of rates adjusted to the total population of the United States in 1940.
Source: National Center for Health Statistics: Advance report, final mortality statistics, 1980. *Monthly Vital Statistics Report*, Vol 32 No. 4 Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD, August 1983. Table C, p. 6

Table 17

Average length of life in years, by race and sex: United States, specified years, 1950-82.
[For 1981 and 1982, based on a 10-percent sample of deaths; for all other years, based on final data.]

Year	All races			White			All other					
							Total			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
1982(est.)	74.5	70.8	78.2	75.1	71.4	78.7	70.9	66.5	75.2	69.3	64.8	73.8
1981(est.)	74.1	70.3	77.9	74.7	71.0	78.5	70.3	66.1	74.5	—	—	—
1980	73.7	70.0	77.5	74.4	70.7	78.1	69.5	65.3	73.6	68.0	63.7	72.3
1979	73.9	70.0	77.8	74.6	70.8	78.4	69.8	65.4	74.1	68.5	64.0	72.9
1978	73.5	69.6	77.3	74.1	70.4	78.0	69.3	65.0	73.5	68.1	63.7	72.4
1977	73.3	69.5	77.2	74.0	70.2	77.9	68.9	64.7	73.2	67.7	63.4	72.0
1976	72.9	69.1	76.8	73.6	69.9	77.5	68.4	64.2	72.7	67.2	62.9	71.6
1975	72.6	68.8	76.6	73.4	69.5	77.3	68.0	63.7	72.4	66.8	62.4	71.3
1970	70.8	67.1	74.7	71.7	68.0	75.6	65.3	61.3	69.4	64.1	60.0	68.3
1960	69.7	66.6	73.1	70.6	67.4	74.1	63.6	61.1	66.3	—	—	—
1950	68.2	65.6	71.1	69.1	66.5	72.2	60.8	59.1	62.9	—	—	—

Source: National Center for Health Statistics: Annual summary of births, deaths, marriages, and divorces: United States, 1982. *Monthly Vital Statistics Report,* Vol. 31, No. 13. DHHS Pub. No. (PHS) 83-1120. Public Health Service. Hyattsville, MD., October 1983, Table 5, p. 15

Table 18

Life expectancy at various ages by race and sex: United States, 1976.

Age (years)	Whites			Nonwhites		
	Both sexes	Males	Females	Both sexes	Males	Females
0	74.0	70.2	77.8	69.2	65.0	73.6
10	65.1	61.5	68.9	61.1	57.0	65.4
20	55.5	52.0	59.1	51.5	47.4	55.6
30	46.2	42.8	49.5	42.5	38.8	46.2
40	36.7	33.6	39.9	33.7	30.4	37.0
50	27.8	24.8	30.7	25.7	22.8	28.5
55	23.7	20.8	26.4	22.1	19.5	24.7
60	19.8	17.2	22.3	18.9	16.5	21.2
65	16.4	14.0	18.4	16.1	14.1	18.0
70	13.1	11.1	14.8	13.2	11.6	14.8
75	10.3	8.6	11.5	11.2	9.8	12.5
80	8.0	6.7	8.8	10.3	8.8	11.5
85	6.2	5.3	6.7	9.3	7.8	9.9

Table 19

Marital status of the population, by sex: 1940 to 1981.

(In millions, except percent, 1940-60, persons 14 years old and over; thereafter, 18 and over. As of March, except as noted. Prior to 1960, excludes Alaska and Hawaii. Beginning 1950, based on Current Population Survey and excludes Armed Forces except those living off post or with their families on post. See *Historical Statistics, Colonial Times to 1970*, series A 160-171, for decennial data)

Sex and Marital Status	1940[1]	1950	1960	1970	1980[2]	1980[3]	1981
Total	101.1	111.7	125.5	132.5	156.2	159.5	162.1
Single	31.5	25.5	27.7	21.4	31.4	32.3	33.2
Married	60.3	74.9	84.4	95.0	102.6	104.6	105.3
Widowed	7.8	9.3	10.6	11.8	12.5	12.7	12.8
Divorced	1.4	2.1	2.9	4.3	9.7	9.9	10.8
Percent of total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Single	31.2	22.8	22.0	16.2	20.1	20.3	20.5
Married	59.6	67.0	67.3	71.7	65.7	65.5	64.9
Widowed	7.8	8.3	8.4	8.9	8.0	8.0	7.9
Divorced	1.4	1.9	2.3	3.2	6.2	6.2	6.7
Males, total	50.6	54.8	60.6	62.5	74.1	75.7	76.9
Single	17.6	14.3	15.4	11.8	17.4	18.0	18.4
Married	30.2	37.2	41.8	47.1	50.8	51.8	52.1
Widowed	2.1	2.3	2.3	2.1	2.0	2.0	1.9
Divorced	.6	.9	1.1	1.6	3.9	3.9	4.4
Percent of total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Single	34.8	26.2	25.3	18.9	23.5	23.8	23.9
Married	59.7	68.0	69.1	75.3	68.6	68.4	67.8
Widowed	4.2	4.2	3.7	3.3	2.7	2.6	2.5
Divorced	1.2	1.7	1.9	2.5	5.2	5.2	5.7
Percent standardized for age[4]							
Single	30.7	26.2	25.3	16.5	18.7	18.7	18.9
Married	62.6	67.4	69.1	77.6	72.8	72.9	72.3
Widowed	5.4	4.7	3.7	3.3	2.8	2.7	2.7
Divorced	1.3	1.7	1.9	2.6	5.6	5.6	6.2
Females, total	50.5	57.0	64.9	70.0	82.1	83.8	85.2
Single	13.9	11.1	12.3	9.6	14.0	14.3	14.8
Married	30.1	37.6	42.6	47.9	51.8	52.8	53.2
Widowed	5.7	7.0	8.3	9.7	10.5	10.8	10.9
Divorced	.8	1.2	1.7	2.7	5.8	6.0	6.4
Percent of total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Single	27.6	19.6	19.0	13.7	17.0	17.1	17.4
Married	59.5	66.1	65.6	68.5	63.1	63.0	62.4
Widowed	11.3	12.2	12.8	13.9	12.8	12.8	12.7
Divorced	1.6	2.2	2.6	3.9	7.1	7.1	7.6
Percent standardized for age[4]							
Single	24.2	20.0	19.0	12.1	14.5	14.5	14.8
Married	59.3	63.9	65.6	70.8	65.9	65.9	65.3
Widowed	14.8	14.0	12.8	13.0	12.0	12.1	11.9
Divorced	1.6	2.1	2.6	4.1	7.6	7.6	8.1

[1]As of April.   [2]Population controls based on 1970 census.   [3]Population controls based on 1960 census.
[4]1960 age distribution used as standard; standardization improves comparability over time by removing effects of changes in age distribution of population.
Source: U.S. Bureau of the Census. U.S. Census of Population: 1950,Vol. II, Part 1, and Current Population Reports, Series P-20, No. 372 and earlier reports. Taken from *Statistical Abstract of the U.S.:* 1982-83 U.S. Government Printing Office, Washington, DC, December 1982, Table 47, p. 38.

Table 20

Marital status of the black and Spanish Origin population: 1960 to 1981.

[Black population: 1960 and 1965, persons 14 years old and over, thereafter 18 and over. Spanish origin population: 1970 and 1975, persons 14 years old and over, thereafter, 15 and over. Except as noted, as of March and based on Current Population Survey, which includes members of Armed Forces living off post or with their families on post, but excludes all other members of Armed Forces]

Sex and Year	Number of Persons (1,000)					Percent Distribution				
	Total	Single	Married	Widowed	Divorced	Total	Single	Married	Widowed	Divorced
Black										
Total: 1960[1]	12,088	3,078	7,461	1,174	376	100.0	25.5	61.7	9.7	3.1
1965	13,273	3,601	7,996	1,194	482	100.0	27.1	60.2	9.0	3.6
1970	12,972	2,668	8,310	1,427	567	100.0	20.6	64.1	11.0	4.4
1975	14,262	3,449	8,373	1,521	920	100.0	24.2	58.7	10.7	6.5
1980[2]	16,638	5,070	8,545	1,627	1,396	100.0	30.5	51.4	9.8	8.4
1981	17,041	5,229	8,601	1,616	1,594	100.0	30.7	50.5	9.5	9.4
Male: 1960[1]	5,713	1,692	3,619	264	139	100.0	29.6	63.3	4.6	2.4
1965	6,211	1,980	3,795	245	191	100.0	31.9	61.1	3.9	3.1
1970	5,898	1,435	3,944	307	212	100.0	24.3	66.9	5.2	3.6
1975	6,368	1,733	3,990	319	327	100.0	27.2	62.7	5.0	5.1
1980[2]	7,416	2,540	4,051	308	517	100.0	34.3	54.6	4.2	7.0
1981	7,590	2,606	4,058	309	618	100.0	34.3	53.5	4.1	8.1
Female: 1960[1]	6,375	1,386	3,842	910	237	100.0	21.7	60.3	14.3	3.7
1965	7,062	1,621	4,201	949	291	100.0	23.0	59.5	13.4	4.1
1970	7,074	1,233	4,366	1,120	355	100.0	17.4	61.7	15.8	5.0
1975	7,894	1,716	4,383	1,202	593	100.0	21.7	55.5	15.2	7.5
1980[2]	9,222	2,530	4,494	1,319	878	100.0	27.4	48.7	14.3	9.5
1981	9,451	2,623	4,544	1,307	976	100.0	27.8	48.1	13.8	10.3
Spanish Origin[3]										
Total:[3] 1970[1]	5,872	1,718	3,666	267	201	100.0	29.3	62.4	4.9	3.4
1975	7,264	2,293	4,378	296	296	100.0	31.6	60.3	4.1	4.1
1980[2]	8,697	2,683	5,202	350	461	100.0	30.8	59.8	4.0	5.3
1981	9,163	2,738	5,530	354	541	100.0	29.9	60.4	3.9	5.9
Male: 1970[1]	2,838	914	1,801	56	67	100.0	32.2	63.5	2.0	2.3
1975	3,520	1,277	2,103	42	96	100.0	36.3	59.7	1.2	2.8
1980[2]	4,196	1,439	2,546	60	151	100.0	34.3	60.7	1.4	3.6
1981[4]	4,429	1,506	2,672	71	178	100.0	34.0	60.3	1.6	4.0
Mexican	2,738	937	1,647	46	109	100.0	34.2	60.1	1.7	4.0
Puerto Rican	465	172	262	11	20	100.0	37.1	56.4	2.3	4.2
Female: 1970[1]	3,033	804	1,864	231	134	100.0	26.5	61.5	7.6	4.4
1975	3,744	1,016	2,275	256	196	100.0	27.1	60.8	6.8	5.3
1980[2]	4,501	1,244	2,656	291	310	100.0	27.6	59.0	6.5	6.9
1981[4]	4,734	1,230	2,858	283	363	100.0	26.0	60.4	6.0	7.7
Mexican	2,743	725	1,686	151	180	100.0	26.4	61.5	5.5	6.6
Puerto Rican	635	209	333	31	62	100.0	32.9	52.4	4.9	9.8

[1]As of April.   [2]Population controls based on 1980 census, see text p. 2.   [3]Persons of Spanish origin may be of any race.   [4]Includes persons of Cuban, Central or South American, and other Spanish origin, not shown separately

Source: U.S. Bureau of the Census. U.S. Census of Population 1960, PC(2) 1C. Nonwhite Population by Race and 1970, PC(2) 1C. Persons of Spanish Origin: Current Population Reports, Series P-20. No. 372 and earlier issues and unpublished data. Taken from U.S. Bureau of the Census, *Statistical Abstract of the United States*: 1982-83 U.S. Government Printing Office, Washington, DC, December 1982, Table 48, p.39

Table 21

Percent married and divorced of the population, 18 years old and over: 1960 to 1981.

[As of March, Based on Current Population Survey and excludes Armed Forces except those living off post or with families on post.]

Sex and Race	1960	1965	1970	1974	1975	1976	1977	1978	1979	1980[1]	1980[2]	1981
Percent married:												
Male	76.4	76.2	75.3	73.7	72.8	72.2	70.9	70.1	69.2	68.6	68.4	67.8
White	77.3	76.9	76.1	74.9	73.9	73.4	72.3	71.7	70.7	70.1	70.0	69.6
Black and other	66.4	70.2	65.4	63.1	63.5	62.0	60.6	58.4	57.5	57.1	56.3	55.2
Female	71.6	70.5	68.5	67.6	66.7	66.2	65.3	64.2	63.5	63.1	63.0	62.4
White	72.2	70.9	69.3	68.8	68.0	67.6	66.7	65.9	65.2	64.8	64.7	64.1
Black and other	66.3	67.6	62.6	58.9	57.3	56.2	55.4	52.6	51.8	51.5	51.6	50.9
Percent divorced:												
Male	2.0	2.5	2.5	3.5	3.7	4.0	4.5	4.7	4.8	5.2	5.2	5.7
White	2.0	2.4	2.4	3.3	3.6	3.8	4.4	4.5	4.5	5.0	5.0	5.5
Black and other	2.2	3.4	3.4	4.8	4.6	5.5	5.0	6.3	6.6	6.6	6.4	7.0
Female	2.9	3.3	3.9	4.9	5.3	5.7	6.2	6.6	6.6	7.1	7.1	7.6
White	2.7	3.1	3.8	4.7	5.0	5.5	6.0	6.3	6.4	6.8	6.8	7.2
Black and other	4.8	4.5	4.8	6.3	7.1	7.4	8.2	8.8	8.3	8.9	8.8	9.6

[1]Population controls based on 1970 census.   [2]Populaton controls based on 1980 census

Source: U.S. Bureau of the Census, *Statistical Abstract of the United States*: 1982-83 U.S. Government Printing Office, Washington, DC, December 1982, Table 52, p. 41.

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Chapter III

Problems of Reproductive Health and Genetic Disease

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Chapter III

Problems of Reproductive Health and Genetic Disease

Overview

In this chapter, the health status of various minorities is compared with that of the white majority and the general population with regard to conditions associated with reproduction and genetic problems. More specifically, this chapter examines health status measures related to pregnancy and childbearing and to sexually transmitted diseases. It also discusses a selected group of genetic problems and cites progress in dealing with some of these.

Maternal mortality has declined over 98 percent in the United States in the 50 years from 1930 to 1980, but further reductions are needed, especially for blacks, American Indians, and Alaska Natives, to achieve the 1990 national goals for maternal mortality. The mothers of other-than-white races had a mortality rate of 19.8 per 100,000 live births, almost three times that of white mothers and over twice that of the total population in 1980. The 1980 black maternal mortality rate of 21.5 was the major component of this group rate and was the highest rate of all minorities. The 1978 maternal mortality rate of American Indians/Alaska Natives (11.1) was 16 percent higher than that of the total population that year.

The infant mortality rate in the United States continues to decline (48 percent from 1960 to 1980). Here again, while the rates of all racial groups have improved, blacks still had almost twice

the infant mortality rate of whites (11.0), and the black infant mortality rate (21.4) was also significantly higher than the rate for the entire population (12.6) in 1980. In 1978, the infant mortality rate of American Indians/Alaska Natives was 11 percent higher than that of the total population. Between 1970 and 1978, the racial differential between American Indians/Alaska Natives and the total population narrowed from 2.07 to 1.29. Between 1970 and 1981, the mortality rate differential has changed very little between blacks and the total population. Whites and Asians seem already to have achieved 1990 goals for infant mortality rates on a national level, but even these groups need to improve rates in many smaller areas. Rates of other races, especialy blacks, require major reductions if the goals are to be achieved.

Low birthweight (under 2,500 grams) is another important health status measure. A low birthweight infant has a greater risk of infant mortality and various kinds of morbidity. The proportion of low birthweight infants born to blacks is still about twice the proportion of those born to whites. Several other characteristics of the mother and the newborn infant are known to be related to increased risk of infant mortality and morbidity. Young mothers, older mothers, high parity mothers, and unmarried mothers all have higher incidences of poor reproductive outcomes—maternal, infant, and fetal mortality, low birthweight infants—and increased levels of morbidity in their infants. Blacks have

higher proportions in each of these risk groups than whites or any other race group. Socioeconomic status, as measured by educational attainment of the mother, appears to be one of the best predictors of birthweight; birthweight increases with socioeconomic level. Again, a higher proportion of blacks than whites is found in the groups with lower levels of education (lower socioeconomic levels).

The number of prenatal care visits and the time of start of medical care received by the mother also contribute to the outcome of pregnancy. While a higher proportion of black women now start prenatal care in the first trimester than was the case in the past, a lower proportion of black women received early care than did white women. Also, in 1980 proportionately more black women received no prenatal care than was the case for white women. Relative to their population distribution, black women are higher utilizers of public family planning clinics than white women, although this does not include all privately provided services. Black women undergo proportionately fewer legal abortions than white women. The increase in abortion rates between 1973 and 1980, however, was greater among black women than white women.

The incidence of sexually transmitted diseases (STD's) has reached epidemic proportions in the United States. Four of these STD's are discussed briefly. The most striking change in the incidence of syphilis has been the large increase in incidence among white males.

This increase has resulted in a reduction of the male race differential (other races/white) for attack rates and in an increase in the sex differential (male/female) for this disease. While the incidence of syphilis remains considerably higher among other races than among whites, the racial differential is decreasing primarily because of increases in the white race rates, so to interpret this as a measure of gain in the health status of other races would be incorrect. The incidence of syphilis is also higher among American Indians/Alaska Natives than among whites.

Racial differentials with regard to gonorrhea are also lower now than previously. This reflects, in small part, slight reductions in gonorrhea in males of nonwhite races, but stems primarily from large increases among white males and very large increases among white females between 1967 and 1979. The rates and racial differentials for two other sexually transmitted diseases with increasing prevalence, herpes II and acquired immunodeficiency syndrome (AIDS), cannot be determined. The difficulty arises because herpes II is not a reportable communicable disease and AIDS is a newly identified problem.

Mental retardation is a state of impairment—not a disease, but a syndrome or a symptom—which can stem from many causes, including psychosocial or polygenic influences as well as biological deficits. A major factor

related to reproductive health and genetic disease is that prevention of mental retardation is now possible in a number of circumstances. Also, better nutrition status of the mother and the infant support optimal physical and mental development of the infant. Tests for genetic defects and early identification and treatment of some problems are helping to correct problems and ameliorate their former impact on the infant, including mental retardation.

With respect to racial/ethnic differences in the incidence of genetic disorders, some of the inherited diseases are linked to specific racial/ethnic groups. Sickle cell anemia affects primarily blacks, while cystic fibrosis occurs mostly among whites. Tay-Sachs disease is mostly limited to Jews of Eastern European origin, while thalassemia has a relatively high incidence among people from the Mediterranean countries and Pacific Islands, and phenylketonuria (PKU) is more prevalent among people of European descent. It is now possible to determine carriers of some genetic defects so that informed decisions can be made about whether or not to have a child. It is also possible now to diagnose whether a fetus has various problems so parents may consider alternatives. Early identification and treatment of some inborn errors of metabolism can correct the problem or ameliorate its impact on the infant. PKU tests are conducted for almost all newborns. Solutions for other metabolic problems are being tested in a growing number of States; other

genetic problems can be reduced or controlled by drugs or other treatments.

A. Introduction

In this chapter, *selected* health problems related to reproduction are discussed. Section B contains information derived from analyses of vital records data describing reproductive events. Health status measures from this source include maternal, infant, and fetal mortality data, and low birthweight information from natality data. It is possible to relate these data directly to race and minority ethnic populations. Death records provide information about cause, age at death, and race of the deceased. Birth records provide information about the mother (race, age, marital status, education level), the infant (race and birthweight), the pattern of care (when care started, number of visits, site/attendant at birth), and other characteristics of the birth event (parity, length of gestation, interval since the last birth). Analyses of subgroups using such descriptors as race, education level of the mother, mother's age, and marital status have shown that some categories within the subgroups have a larger proportion with poor outcome measures.

An indirect relationship to poverty also has been defined, since the groups with greater proportions of poor outcome measures are also often residents of areas where relatively large portions of the population have low income levels. Education level of the mother is also often used as a proxy to measure economic status. In some

cases, the racial or ethnic groups with larger proportions of poor outcomes also have relatively large proportions with low income. Because of these relationships, such groups (e.g., mothers with low education levels, very young mothers, or black mothers) have been used as proxy indicators of disadvantaged groups in the population. Also covered in Section B are other subjects related to reproduction: family planning (use of contraception and treatment of infertility) and abortion.

Material about sexually transmitted diseases is included in Section C because these diseases—with their adverse impact on the health of fathers, mothers, and infants—are transmitted via the process of reproduction. The last sections deal with mental retardation and selected inherited and genetic defects.

The incidence and/or prevalence of problems related to acute and chronic conditions which may also affect reproduction (e.g., cancer of the reproductive organs) are not covered in this chapter. They are discussed in the chapters dealing with these general conditions.

Chapter I presents many caveats about interpreting the information in this publication. These are of special importance to users of this chapter. In addition, because of the availability of the many statistical analyses using vital records data, the reader should understand that the statistical relationships of various population characteristics to poor health status measures are not necessarily causal relation-

ships. For example, while black mothers have a higher proportion of poor reproductive outcomes than white mothers, being black does not *cause* a poor outcome and being white does not *prevent* one. In fact, mothers of all races with similar high-risk characteristics have a higher proportion of poor outcomes (e.g., the very young, the unwed, those with low education levels, those with poor patterns of care or no care).

B. The Measures of Reproductive Health Status

1. Maternal Mortality and Morbidity

Throughout history until the last 50 years, the reproductive process—pregnancy, delivery, and aftercare of the mother—has taken a terrible toll in maternal deaths. At the beginning of this century, more than 7 out of each 100 mothers died during or as a result of childbearing, and the rates changed little until the mid 1930's (see Table 1). After more careful instruction of the mother, improved prenatal care, more stringent observance of hygiene during confinement, and other measures to make childbearing safer, the rates began to drop rapidly (1, p. 509). Some of the reductions that occurred from the 1940's on were thought to be due to investigations into the causes of maternal deaths, major changes (stemming from these investigations) in providing care, and the introduction of effective drugs to combat infection (2, p. 86). More recent reductions in maternal mortality stem from

further improvement in and more widespread utilization of these practices, various technical advances, the availability of family planning to allow better spacing of pregnancies, and legal abortions, which have "...permitted terminations of pregnancy when conditions were less than favorable...." (1, p. 507)

The maternal mortality rate declined from 673.2 per 100,000 live births in 1930 to 9.2 (339 deaths) in 1980, a staggering 98.6 percent drop during a 50-year period. The rate was reduced still further in 1981 to 8.6 per 100,000 women (see Table 1). The 50-year reduction was reflected in rates of both the white group (98.9 percent) and the "other races" group (98.3 percent). In the 1930's and 1940's, the percent reductions were much greater for the white race. This was reflected in an increasing differential of over three and a half times higher mortality for mothers of other races. In the 1950's and 1960's, the percent reductions were almost the same, and in the 1970's, the percent reduction for the other races was substantially greater than for whites. Despite this rate of improvement, the maternal mortality rate for nonwhites is still almost three times that of white mothers, 19.8 versus 6.7 per 100,000 live births in 1980. The basic reduction continued in 1981, when the white maternal mortality rate was 6.3 and the nonwhite rate was 17.3 per 100,000 live births, leading to a further reduction of the differential to 2.75.

The largest component of the nonwhite population is the black race, comprising 11.7 percent of the 1980 U.S. population and 16.3 percent of 1980 U.S. live births. The maternal death rates for this group are higher than those of the combined total for all other nonwhite groups, identifying black mothers as a group posing special problems in this area.

Another important component of the nonwhite population, though substantially smaller in number than the black component, is American Indians/Alaska Natives, about 0.6 percent of the U.S. population in 1980. While the maternal mortality rate of this group was substantially better than that of blacks, it was at least 1.5 times higher than the white rate through 1973. During the next 5-year period (1974-1979), it was for 3 years slightly better than for whites and for 2 years somewhat worse.

The disparity between the nonwhite maternal mortality rate versus the white rate as of 1980 is also shown in the following:

Race Group	Population (%)	Maternal Deaths (%)
Total	100	100
White	83	58
Other	17	42
(Black)	(11.6)	(38)

Blacks fared proportionately worst of the racial groups for which data were available. Maternal mortality data on Asians were not analyzed because of the very small numbers involved.

The four leading causes of maternal deaths in 1980 were:

Cause	Nonwhite/White Differential
Complications of puerperium	2.05
Toxemia of pregnancy	2.83
Ectopic pregnancy	4.25
Hemorrhage of pregnancy and childbearing	2.67

The disadvantage for nonwhite mothers versus white mothers is true also of specific causes of death. Ectopic pregnancy has a nonwhite death rate 4.25 times greater than the rate for white mothers. A contributor to ectopic pregnancy, pelvic inflammatory disease, has a much higher incidence among blacks than whites (see Chapter IV, Section C). This condition can also lead to infertility.

Further reduction of maternal mortality rates is today a national objective. The specific goal from *Promoting Health/Preventing Disease* reads: "By 1990, the maternal mortality rate should not exceed 5 per 100,000 live births for any county or for any ethnic group (e.g., Black, Hispanic, American Indian)."

(3, p. 17) To meet this goal, a reduction of 25 percent in the mortality rate of white mothers will need to occur between 1980 and 1990. Obviously, even greater reductions are required among nonwhite mothers, especially black mothers, who need a reduction of over 75 percent. The reduction required among American Indians/Alaska Natives between 1978 and 1990 is 55 percent. While several programs directed at maternal health exist (4, pp. 31-32), "...studies have not generally been designed to yield firmly defensible data on the relative contribution of programs." (3, p. 17)

Several risk factors are associated with maternal mortality and morbidity. "Women who are at particularly high risk during pregnancy are those with medical complications such as heart disease or diabetes, those with a history of difficult pregnancies, and those who have had abortions or stillbirths." (1, p. 508) Whether or not they are serious enough to cause a maternal death, these problems adversely affect the health of the mother, the development of the fetus, and the health status of the newborn infant. The prevalence of diabetes is considerably higher among

nonwhite women than among white women (see Chapter V, Table 4). Also, the rate of fetal loss for nonwhite mothers, especially black mothers, is appreciably higher than for white mothers (see Table 5, this chapter).

2. Infant and Fetal Mortality

The infant mortality rate has conventionally been used both as an indicator of health status and as a measure of general living standards of a population. This rate is computed by dividing the number of infant deaths (deaths occurring during the first year of the infant's life) for a calendar year by the number of live births (in thousands) for that calendar year. Since the data are collected each year by the Vital Records System, the information is current and accurate.

Use of this rate to measure health status is seen as preferable to use of mortality rates for the entire population, which are based on population estimates except in censal years. The health of the infant is influenced both by the health of the mother and to some degree by the general health conditions of the environment. Thus, the mortality and morbidity experience of infants may serve as a barometer of the general environmental conditions that affect the health of the population. In fact, using infant mortality as a health status indicator has produced results remarkably close to those generated by far more complex formulas designed to measure an area's health status (2, p. 87).

The infant mortality rate has the advantage of being

Figure 1
Maternal death rates
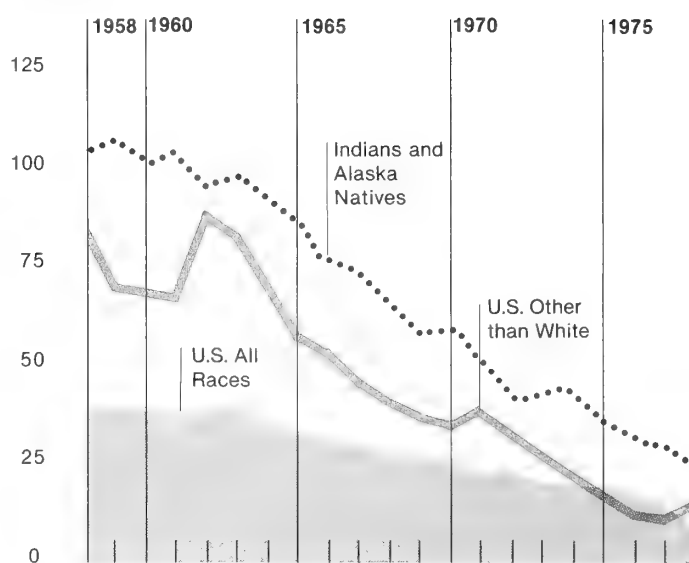
Source: FY 1984 Budget Appropriation Indian Health Service "Chart Series". Vital Events Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD, April, 1983.

simple to calculate and understand. It is also available for most other countries, allowing comparisons. In addition, it is available for smaller geographical regions of the United States, for racial groups, and for other groups defined by such characteristics as mother's age, marital status, etc., which facilitates identification of both geographic areas and segments of the population requiring special attention.

"Despite the belief of many Americans that the medical and health status of the United States population should be the best in the world, the basic health status measure, infant mortality, . . .does not reflect this expectation." (2, p. 92) When

the infant mortality rates of 20 nations are ranked from low to high, the United States ranked 12th in 1976 and 16th in 1980 (see Table 4). These nations were selected on the basis of ". . .economic development, size of population and certain reporting constraints, as defined in World Health Organization Publications." (1, p. 92) While there are recording differences among some countries, the methods of defining and recording infant deaths in most developed countries are considered essentially comparable to those of the United States. Therefore it is generally accepted that the United States does in fact lag behind a number of other countries in its ability to reduce infant deaths. This is explained by some as resulting from dif-

ferences in demographic makeup, in the availability and accessibility of health care systems, and in socioeconomic characteristics.

Within the United States, infant mortality rates, like maternal mortality rates, vary among the various racial groups. In 1980, 12.6 out of every 1,000 infants, 11.0 of every 1,000 white infants, 19.1 of every 1,000 nonwhite ("black and other") infants, and 21.4 of every 1,000 black infants born alive died in infancy (see Table 5). Thus the black infant mortality rate was almost twice the rate of whites in 1980 (see Table 5 and Figure 2).

The infant mortality rate of American Indians/Alaska Natives (see Table 6) was 29.2 percent higher than that of whites in 1978: 15.5 infant deaths per 1,000 live births compared to 12.0 infant deaths per 1,000 live births among whites.

The gap between the American Indian/Alaska Native population and the white population narrowed with regard to infant mortality during a recent 8-year period (selection of years was based on availability of data for American Indians/Alaska Natives). The American Indian/Alaska Native-to-white infant mortality differential decreased from 2.07 in 1970 to 1.29 in 1978 (from Table 6). The black-to-white infant mortality differential increased from 1.83 in 1970 to 1.95 in 1980, but dropped slightly to 1.90 in 1981 (from Table 5). While the white infant mortality rate decreased 32.6 percent in the years between 1970 and 1978 (about 4 per-
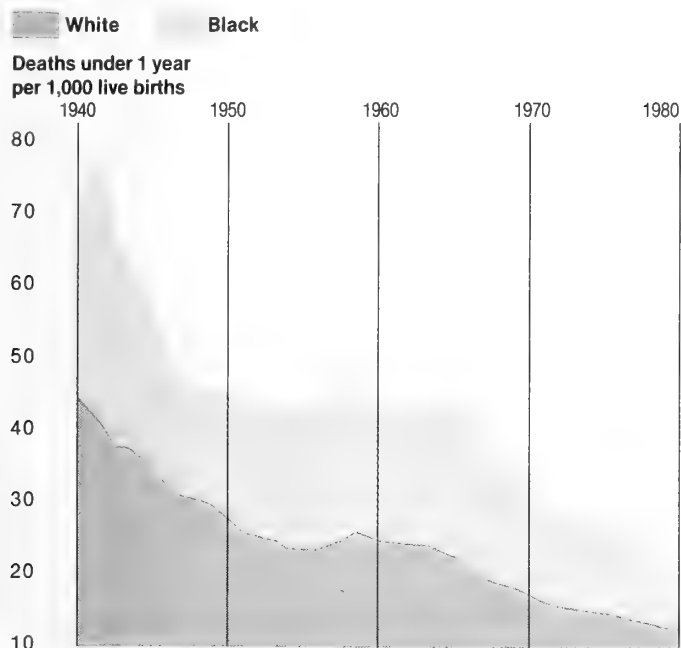
White   Black

Deaths under 1 year
per 1,000 live births

cent per year), that of American Indians decreased 37.0 percent (about 4.6 percent per year), and that of blacks decreased 29.1 percent (3.6 percent per year) during the same time interval.

Although these groups are the largest racial groups in the United States, another group, Asians, is of growing importance in this country, and an ethnic group, Hispanics, needs to be mentioned. Asians are typically considered to be Chinese, Japanese, Filipinos, and "other Asians." However, the large numbers of refugees from Vietnam and even those from Afghanistan make them a group of current public health concern. Infant mortality rates for Asians are considerably better than for others in the nonwhite race category (see Tables 5, 6,

and 7). Details regarding the new refugee populations are not available.

The Hispanic ethnic group is also comprised of many subgroups—Mexicans, Puerto Ricans, Cubans, and now the refugees from El Salvador, Haiti, and other countries of Central and South America. It comprised 6.4 percent of the U.S. population in 1980. The infant mortality rate for Hispanics has traditionally been included in the white rates, and there are no national mortality rates for this group at this time (4). However, areas with large Hispanic populations often have relatively higher white infant mortality rates. Some States are now collecting data on the Hispanic popula-

tion, so natality characteristics are examined later in this section.

The causes of infant death reflect most of the diseases and conditions which afflict all humans, in addition to many which relate to the birth process. Congenital anomalies are the leading cause of death in infants and have a higher rate for white than for nonwhite infants. For other major causes of infant death, the nonwhite rates are substantially higher than the white rates, although reductions are seen in rates for all causes of death and for all race groups. Again, where black data are available, the black infant mortality rates are usually higher than the nonwhite rates (5).

Nonwhite races, and particularly blacks, are also at a basic disadvantage in connection with fetal mortality. Nonwhites had a fetal mortality rate 1.59 times greater than whites in 1981 (see Table 5). From 1970 to 1980, fetal mortality was reduced 35.9 percent. For whites, the reduction was 34.7 percent, and for nonwhites 41.2 percent.

It is important to review infant mortality and fetal mortality not only in terms of racial components but also in terms of age at death and length of gestation. The interventions to help prevent fetal loss and early infant death are quite different from those needed to prevent deaths occurring to older infants. In the first case, the deaths are caused by congenital anomalies and conditions related to prenatal and birth problems, including the immaturity of the infant at birth and the health status of the mother. They also are

related to the schedule of prenatal care. Later deaths tend to stem also from congenital anomalies, as well as from acute conditions (e.g., respiratory infections) and accidents. Some of these may be related more closely to the availability and utilization of pediatric health care (2).

The gestation period is divided for our purposes into various lengths (12). Some researchers use 20-27 weeks of gestation versus 28 or more weeks (7), and others use term (> 37 weeks of gestation) versus preterm (≤37 weeks of gestation) (11). A fetal death is defined as a birth without required signs of life occurring after 20 weeks or more of gestation.

The period of infancy (the first 12 months of life) is divided into the neonatal period (the first 28 days of life) and the postneonatal period (the remaining 29-364 days). The neonatal period is itself further divided into time frames related to risk of death—under 1 day (0 day), 1-6 days (the rest of the first week of life), and 7-27 days.

The majority of infant deaths occur during the neonatal period. In 1980, 8.5 of the 12.6 infant deaths per 1,000 live births (67.5 percent) occurred during the neonatal period; 4.1 of the 12.6 infant deaths per 1,000 (32.5 percent) occurred during the postneonatal period. In 1981, the neonatal rate, 8.0, and the postneonatal rate, 3.9, maintained the same general distribution (67.2 and 32.8 percent) (see Tables 5, 6 and 9).

Postneonatal mortality rates (not given in Table 5 but included in Tables 6 and

7) may be calculated by subtracting neonatal mortality rates from infant mortality rates. The proportion of deaths for American Indians/Alaska Natives for the neonatal and postneonatal periods do not have the same distribution seen in the rest of the population. They are almost evenly divided between the two periods. The mortality rate differentials of American Indians/Alaska Natives and blacks to all races were calculated for 1970 and 1978. (These are years for which data are available for American Indians/Alaska Natives.)

Mortality Differentials to All Races

	American Indian/Alaska Native		Black	
	1970	1978	1970	1978
Neonatal mortality rate	.81	.82	1.51	1.63
Postneonatal mortality rate	2.51	1.77	2.00	1.77

Some striking differences may be noted. First, neonatal mortality rates of American Indians/Alaska Natives in both 1970 and 1978 were lower than those of the total population. Second, among both American Indians/Alaska Natives and blacks, greater disparities with the total population occurred in postneonatal mortality rates than in neonatal mortality rates. Third, the differentials suggest that, among both groups, greater improvements relative to the total

population occurred in post-neonatal mortality rates than in neonatal mortality rates. The postneonatal mortality rates decreased 38.2 percent for American Indians/Alaska Natives, 22.4 percent for blacks, and only 10.0 percent for whites from 1970 to 1978. The neonatal rates from 1970 to 1978 were reduced 39.1 percent for whites; for all other races the reduction was 34.6 percent, and for blacks the reduction was 32.0 percent.

As with the infant mortality rate, the neonatal and post-neonatal rates for Asians are substantially lower than for all other races, including whites (5).

The reduction of infant mortality rates continues to be a national goal in the United States. The specific goal as stated in *Promoting Health/Preventing Disease* follows. "By 1990, no county and no racial or ethnic group of the population (e.g., black, Hispanic, Indian) should have an infant mortality rate in excess of 12 deaths per 1,000 live births." (3, p. 17)

National infant mortality rates for racial groups have previously been presented. It would appear that whites and

various Asian groups have already reached the 1990 goal for their total U.S. populations. The other races must have a reduction of 32.6 percent in the next 9 years, or 3.6 percent a year. Blacks must reduce infant mortality by 40 percent during the next 9 years, 4.4 percent a year. This is the national picture; to achieve the goal for each city and county as well adds another dimension to the challenge (6). In 1979, of 59 major U.S. cities, 32 had white infant mortality rates higher than 12 per 1,000 live births. The white infant mortality rate in Baltimore City was 20.8 per 1,000. The nonwhite infant mortality rate in 1979 in 52 out of 59 major U.S. cities was over 12 per 1,000, and in 29 of these cities it was over 20 per 1,000. For over 60 percent of the 3,131 counties of the United States, the 5-year average rate for 1979-1980 was greater than the goal of 12 infant deaths per 1,000 live births (6, p. 103 and 7).

3. Factors Associated with Infant Mortality and Morbidity

It is natural to ask why a country such as the United States has such high infant mortality compared with other industrialized countries; why this Nation has not improved its relative position over the years; and why infant mortality rates among some minority groups are appreciably higher than those of the population as a whole.

The many analyses of the relationship of characteristics of the mother, the infant, and the reproductive event to reproductive outcomes iden-

tify the characteristics which seem to be more closely related to high risk of poor outcomes. Providers are alerted to take special precautions for women with these characteristics, or to provide special services. Thus, while it is not possible to define the precise value and impact of each element of prenatal care on each infant, it is clear that, as groups, mothers who seek care early, who have an appropriate number of visits, who space their infants so that their own bodies have recovered from a previous pregnancy, and who deliver in hospitals have better reproductive outcomes than others (10, 12). This section reviews some of these characteristics in terms of racial, ethnic, and low income groups.

a. Low Birthweight

Prior to 1979, low birthweight referred to an infant weighing 2,500 grams (5 ½ pounds) or less at birth, whether the infant was born "full term" or premature (before 37 weeks of gestation) (3, p. 1). This criterion was recommended by the American Academy of Pediatrics in 1935. In 1979, the criterion was changed from 2,500 grams *or less* to *less than* 2,500 grams. This newer definition is consistent with the Ninth Revision of the International Classification of Diseases. The National Center for Health Statistics (NCHS) states that the change in definition has very little impact on the comparative statistics.

Definitions for *very low* birthweight infants are not so consistent. Some research studies use "under 2,000

grams" (7, 12) and the NCHS in many of its reports now uses "under 1,500 grams." In either case, the increased risk of death and morbidity among very low birthweight infants is well documented (8, 9). Neonatal mortality among low birth-weight infants is over 20 times as high as among heavier infants. Morbidity, particularly that associated with the central nervous and respiratory systems, is higher among low birthweight infants than among other infants (10, p. 28).

A rise in the proportion of low birthweight infants occurred in the United States during the 1960's, but it started to drop again in the early 1970's (see Table 7). Due to the smaller decrease in the proportion of low birth-weight births among blacks, the racial differential between black and white low birth-weight infants was slightly greater in 1980 than in 1970 (2.04 in 1970, 2.19 in 1980).

While the ratio of low birth-weight infants born to blacks is considerably greater than the ratio born to all races, some other racial/ethnic minorities (as well as the white majority) have a lower ratio of low weight births than the general population. In the most recent data year for American Indians/Alaska Natives, 1978, this group had a low birthweight incidence of 6.5 percent compared with an incidence of 7.1 percent for the general population in the same year (see Table 11). Birthweight data have become available only recently for Hispanics, who had a lower ratio of low birth-weight in 1980, 6.1 percent,

compared with the general population ratio of 6.9 percent (see Table 9).

"In light of the large number of deaths and the severe physical and mental handicaps that can accom-pany low birthweight, in-creasing attention has been focused on some of the associated factors." (10, p. 1) An in-depth study of 1976 birth certificates was con-ducted by the Division of Vital Statistics of the National Center for Health Statistics. Some of the findings of that study were:

1) Birthweight increased with socioeconomic status of the family (as measured by the educational attainment of the mother) (10, pp. 1-2).

2) Age of mother is also related to birthweight. Mothers at each end of the childbearing age spectrum were more likely to bear low birthweight infants, while mothers age 25-29 years were least likely to bear a low birthweight baby (10).

3) Regardless of age, married mothers were less likely to bear a low birth-weight infant than were un-married mothers (10).

4) Also regardless of age, " . . . mothers were least likely to bear a low birth-weight baby when the inter-val between births was 2-4 years." (10)

5) A far higher proportion of all nonwhite infants than white infants is of low birth-weight. However, the large proportion of low birthweight infants is not common to all nonwhite births. In 1976, the incidence of low birthweight was highest among black in-fants (13.0 percent) and lowest among Chinese infants (5.7 percent) (10).

To summarize findings regarding birthweight based on birth certificate data, ". . . the incidence of low birthweight in the United States varies widely by race and by mother's age, marital status, . . . and pregnancy history. The socioeconomic status of the family, as measured by the mother's educational attainment, ap-pears to be one of the most critical factors, however, in determining birthweight." (10, pp. 1-2) Also related are birth order, interval between births, the timing of start of care, and number of prenatal care visits (12). A study examining reductions in low birthweight between 1970 and 1980 determined that most of the reduction came from the group of infants with at least 37 weeks' gestation (11).

From studies of low birth-weight which analyze data not found on birth certificates, other factors have been shown to be related to low birthweight incidence. For in-stance, it is believed that in-adequate maternal nutrition is the cause of about one-third of low weight births (13). In addition, the proportion of low birthweight newborns has been seen to be higher among mothers who start their prenatal care later in the pregnancy or do not receive any care (14). Major efforts are now being made to im-prove the nutrition status of women during pregnancy. These include nutrition and diet counseling as well as food supplement programs (e.g., the Women, Infant and Children Supplemental Food Progam [WIC]) for mothers identified as having special needs, and for their young

children. A major effort has also been undertaken in re-cent years to encourage new mothers to breastfeed their newborns as a means of pro-viding an appropriate level of sustenance to the infant. This includes a Surgeon General's Workshop on Human Lacta-tion. National data are not available which directly assess the nutrition status of mothers and infants, but the data which are available from the National Health and Nutri-tion Examination Survey, 1976-1980, indicate that diet intake of protein per 1,000 calories for women 15-44 years of age living at or below the poverty income level is 2 to 4 grams lower than for women 15-44 years of age living above the poverty level. The intake of vitamins A and C, calcium, and iron reflected the same patterns of lower intake for women age 15-44 years liv-ing at or below poverty (21). Some aspects of the impact of nutrition on genetic prob-lems are discussed later in this chapter.

In studies which examine lifestyle variables, the smok-ing, drinking, and drug abuse habits of expectant mothers have been shown to be determinants of infant weight and health. Even moderate use of alcohol during pregnancy is associated with a significant decrease in birthweight (1, p. 508, and 15, p. 81, 16, 17, 18, 19).

Many factors related to poor reproductive outcomes are also related to one another, and in combination seem to have a dispropor-tionate impact on an infant's health status (12, 20).

b. Mother's Age, Parity, and Marital Status

"Pregnancies among teenagers, among women who are unmarried, among women over the age of 34, and among high parity (and gravidity) women are all associated with higher than average rates of maternal and/or infant morbidity and mortality." (3, p. 11) In each of these circumstances of pregnancy, an infant is more likely to be unintended and unwanted than in the case of pregnancies among married women in the most favorable childbearing years who do not already have any children or as many as desired (3, p. 11).

The physiological and psychological immaturity of very young mothers poses a health risk to the infant as well as to the mother (3, p. 15). ". . . Teenage pregnancies are associated with markedly increased risks of maternal morbidity and mortality and of premature and term low birthweight infants who have reduced chances of surviving infancy and high rates of serious neurological impairment." (3, p. 11)

With regard to the first-mentioned risk factor, mother's age, black teenage birth rates are higher than white teenage birth rates. The birth rate in 1980 among black girls aged 15 to 17 years (73.6 per 1,000 live births) was almost three times the birth rate for white girls of that age group (25.2 per 1,000 live births) (see Table 13). The rate decreased for this age group between 1970 and 1980 by 13.7 percent for whites and 27.4 percent for

blacks. Birth rates are substantially higher among black women than white women in each age group, with the exception of the 25-29 and the 30-34 groups, which are very similar. The differentials are greater, however, for the very ages that are at highest risk for childbearing. For instance, the largest black-to-white differential for birth rates in 1980 is among 10- to 14-year-olds (3.58), followed by that for 15- to 17-year-olds (2.26), 18- to 19-year-olds (1.69), 40- to 44- year-olds (1.49), and 45- to 49-year-olds (1.50). The total black/white birthrate differential in 1980 was 1.23 (22).

Pregnant teenagers accounted for 16 percent of the infants born in 1980 (22, p. 10). Early teenage childbearing is higher in the United States than in other countries. Some of that higher rate is accounted for by blacks, but even among whites aged 17 and younger, fertility is higher in the United States than in 27 of the 30 countries studied (23, p. 104). Several explanations for this difference (abortion laws, financial benefits to teenage mothers, family planning services) were considered and discarded. An intercountry study undertaken by Princeton University and the Alan Guttmacher Institute has examined intercountry and interstate differences in teenage fertility, abortion, and pregnancy rates, as well as the reasons for these differences (23a, pp. 53-63).

Parity, the second risk factor under discussion in this section, refers to the live birth order of each infant born to one woman. Thus a "high parity woman" (multipara) is

a woman who has given birth to a relatively large number of live children and whose health reflects the toll of bearing this large number of infants. It is distinct from other measures, such as birth rate (which characterizes the number of births per 1,000 women in a given age group within a specified geographic area using as a base reference all women of childbearing age [15-44 years] living within that area, whether or not they have a child) and fertility rate (which is the sum of birth rates for all years for a specified age group).

The drain of childbearing on the mother, the adverse impact of high birth order on infants, and the difficulties for a family in providing for large numbers of children is shown (see Table 14) to be a greater problem for other races than for whites and to be greatest for Hispanics (22, 24).

Based on data from the 1976 National Survey of Family Growth (25, p. 2), 39 percent of black couples compared with 33 percent of white couples had three or more children (25, p. 9). Also, the percentage of black couples with no children is lower (11.0 percent) than that of white couples (19.0 percent) (25, p. 9).

Marital status is the last risk factor included in this section. Infant mortality is higher among births to unmarried women than to married women. Out-of-wedlock births may affect infant mortality because of the stress involved, because they include many younger mothers, or because they often occur to mothers of lower

socioeconomic status. Blacks had a rate of 82.9 births per 1,000 unmarried women in 1980, while the white rate was 17.6 (see Table 15). Although the out-of-wedlock birth rate of blacks was 4.71 times that of whites in 1980, between 1970 and 1980 the unmarried birth rate had increased 27.5 percent among whites, but decreased 13.2 percent among blacks. The out-of-wedlock birth rate of 52.0 births per 1,000 unmarried Hispanic women in 1980 was also considerably higher than that of whites, but it was lower than the rate among blacks (see Tables 15 and 16). The birth rate of all unmarried women in 1980 was 29.4 per 1,000 unmarried women (see Table 15).

c. Socioeconomic Factors and Medical Care

In this section, the part played by socioeconomic level on poor reproductive outcomes is discussed with respect to differing patterns of medical care during pregnancy. The socioeconomic level is known to be inversely related to the infant mortality level (10). Without exception, all of the risk factors already discussed have a direct relationship to socioeconomic level. Few studies of infant mortality have income data and none were found which examined the impact of socioeconomic measures on mortality while controlling for mother's age at pregnancy, marital status, parity, and low birthweight. Concern has been focused on identifying the high-risk patient and the characteristics that indicate a possibility of intervening. Various health

and nutrition programs have been developed to help ease the impact of poverty on the health of mothers and infants and on the availability of quality medical care.

Nonetheless, the effect of socioeconomic level is such that medical care cannot completely offset the higher risk of infant mortality and morbidity among the disadvantaged. "The medical complications and the other associations with an unfavorable outcome of pregnancy are so prevalent among low-income high-risk patients, that the few months the obstetrician sees the patient prior to labor are insufficient to offset the years of deprivation and its effects on the growth and development of the mother." (26)

Even so, the majority of observers believe that the amount and quality of medical care received by the mother and infant contribute to the best possible outcome of the pregnancy. Since the mid 1960's, when Medicaid legislation started to provide payment for prenatal care, delivery services, and postpartum care, and the Title V Maternity and Infant Care Projects were models for providing quality care to disadvantaged populations, these types of services have been more available (2, pp. 94, 26). Birth certificate data for the District of Columbia and 48 States that report prenatal care on their birth certificates are presented in Table 17. In 1980, 79.3 percent of white mothers, compared with 62.7 percent of black mothers, began care in the first 3 months of pregnancy. While the proportion of nonwhite mothers who received early prenatal care

in 1980 was lower than the proportion of whites, a greater gain in percent of mothers with early prenatal care over the past 10 years was experienced by nonwhite mothers than by white mothers (22). The proportion of nonwhite mothers who received no prenatal care (2.7 percent) in 1980 was considerably higher than that of white mothers (1.0 percent) (22).

The median number of prenatal visits for births in 1980 by trimester (27, p. 7) was not too dissimilar for blacks and whites in 1980, as shown below. The differences were less than one visit per trimester.

Median Number of Visits			
	White	Black	Difference
1st trimester	12.2	11.3	0.9
2nd trimester	9.0	8.2	0.8
3rd trimester	4.9	4.4	0.5

The National Ambulatory Medical Care Survey (NAMCS) is another source demonstrating the similarities in prenatal care among the racial/ethnic groups of interest. Chapter XI demonstrates that physician office visits by blacks are proportional to their number in the population when compared to whites. NAMCS data show that the proportion of all physician office visits made by black women seeking prenatal care (6.3 percent) is again not too dissimilar to the proportion for white women (7.1 percent) (27, p. 36).

Prenatal care as reported on birth certificates in 22 States for the Hispanic population is presented in Table 18. In 1980, a lower

Almost all births among whites (99.0 percent), nonwhites (99.1 percent), and blacks (99.1 percent) occurred in a hospital in 1980 (see Table 19). This proportion of Hispanic women (60.3 percent) began prenatal care during the first trimester than did white non-Hispanic women (81.3 percent). The proportion was similar to that of black non-Hispanic women (61.1 percent). In addition, a far higher proportion of Hispanic mothers (3.8 percent) and black non-Hispanic mothers (3.2 percent) received no prenatal care compared with white non-Hispanic women (0.8 percent).

percentage among nonwhites represents a major gain since 1960, when only 85.0 percent of nonwhite births occurred in a hospital. Births attended by a physician dropped from 99.5 percent in 1970 to 99.1 percent in 1975 and 97.2 percent in 1980, reflecting an interest in natural childbirth and alternative birth methods. This basic picture is also true of individual racial groups.

4. The Problems of Unwanted Fertility and Infertility

These problems are often equated with prevention of unwanted pregnancies using various components of family planning (including contraception) and abortions. But in fact, family planning has as its aims the appropriate spacing of pregnancies and the reduction of those

pregnancies that unfavorably affect or jeopardize maternal and infant health.

"Family planning is a preventive health measure which supports maternal and infant health and . . .includes measures both to prevent unintended fertility and to overcome unintended infertility." (3, p. 11) It is directed to both men and women, and includes education and service provision primarily in the area of contraceptive use, although the growth in improved technology aimed at infertility is widely publicized and includes efforts to regularize and stimulate ovulation, test-tube fertilization, and implantation *in utero*.

Of the 9.3 million family planning visits reported in 1980, 70.5 percent were made by white women, 27.4 percent were made by black women, and 2.1 percent were made by races other than white or black (see Table 20). Relative to their population distribution (11.7 percent of the total population), blacks are higher utilizers of (reporting) family planning clinics than whites. In terms of ethnic origin, 12.6 percent of visits were made by Hispanic women. For the most part, these visits do not include those made by women to their private physicians (see Table 20).

The estimated percentage of currently married white women using some form of contraception was 68.8 in 1976 compared with 58.8 percent of currently married black women (see Table 21). Between 1965 and 1976, the proportion of white women estimated to be using some

type of contraception increased by 4.7 percent (from 64.1 to 68.8 percent) while the proportion of black women reporting some type of contraception increased only 2.4 percent (from 56.2 to 58.6 percent) (see Table 21).

Various campaigns and pressures have affected use of contraceptives:

1) Adverse side effects of some contraceptive methods became known;

2) Compaigns by religious and/or race groups have opposed contraception;

3) The rapid spread of herpes and other social diseases slowed indiscriminant sexual activities among some groups.

Prior to the liberalization of abortion laws, women of low socioeconomic status were more likely to have no abortions, or worse, to have self-induced abortions or abortions by nonlicensed practitioners. In contrast, women in higher income brackets could take advantage of the liberal practices of some private physicians. As would be expected, no reliable data exist on abortion practices prior to 1970. Since 1970, abortion clinics have witnessed a steady increase in the proportion of nonwhite women patients.

The number of reported legal abortions has increased each year from 1973 to 1980 for both whites and nonwhites, with the exception of a 1.1 percent decrease among nonwhites from 1978 to 1979 (see Table 22) (28). The average annual percentage increase between 1973 and 1980 was higher among

nonwhites (13.7 percent) than among whites (10.4 percent). It is not known if terrorist bombings on abortion clinics throughout the United States beginning in 1983 will have any impact on those who might seek abortions from this source.

The 1976 NCHS National Survey of Family Growth (NSFG) cites infertility data based on personal interviews of 8,611 women ages 15 to 44 (25, p. 4). In this survey, "...fecundity refers to the ability (at date of interview) of a currently married couple to reproduce, that is to have live born children;..." (25, p. 45). Infertility refers to couples "...who were not surgically sterile and were continuously married, did not use contraception, and did not have a pregnancy for at least 12 months before the date of interview." (25, p. 15) Impaired fecundity includes those who are either infertile or surgically sterile.

While birth rates and fertility rates of black women are higher than those of white women (see Chapter III), black couples were found to be much more likely to have impaired fecundity than were white couples (23 percent compared with 15 percent) (25, p. 9). Also, among black wives with no children (zero parity), 35 percent had impaired fecundity as compared with 21 percent of white wives with no children (25, p. 9). Since a smaller proportion of black wives had no children, however, "...the proportion of all couples who had no children and impaired fecundity was about 4 percent for both white couples and black couples. Thus if being childless and having impaired

fecundity is one definition of infertility problems, these problems were not more common among black couples than among white couples in 1976. However, if having a fecundity impairment at parity one, two, or three or more is also considered an infertility problem, these problems were more common among black than among white couples." (25, pp. 9-10)

While the cause of higher impaired fecundity among black women in comparison with white women will not be explored at length here, some of the risk factors are listed below. These are known or suspected risk factors found in the NCHS document "Reproductive Impairment Among Married Couples: United States" (25, p. 10).

They are:
1) Genetic factors, including sickle cell anemia;
2) Alcohol and drug abuse;
3) Nutritional diseases;
4) Infectious diseases, such as gonorrhea; and
5) Infections after child birth or after a poorly performed abortion.

The higher rate of impaired fecundity that has been observed among black women is an important finding. This is so not because black women bear fewer children than white women (they do not), but rather because the higher rates of impaired fecundity among black women imply higher levels of morbidity among black women compared with white women.

C. Sexually Transmitted Diseases (STD's)

"Sexually transmitted diseases (STD's) are infectious diseases grouped together because they spread by transfer during sexual contact. Women and children bear an inordinate share of the sexually transmitted disease burden: sterility, ectopic pregnancy, fetal and infant deaths, birth defects and mental retardation." (3, p. 25) In 1978, estimated costs for the most common STD, gonorrhea, were over $770 million a year, while total costs for all sexually transmitted diseases exceed $1 billion annually (3, p. 25). In 1980 there were over 1 million reported cases of gonorrhea and syphilis, primary and secondary, in the United States (28, p. 120). The true incidence of STD's is probably substantially higher, since the Center for Disease Control estimates that only about half of all known cases are reported (29, p. 75).

"Increased sexual contacts...have led to an increased incidence of sexually transmitted, or venereal diseases." (29, p. 75) Other factors may have contributed to the increase in STD incidence. One major factor is the more widespread use of oral contraceptives and intrauterine devices (IUD's), which lack the protection from disease "...afforded by the condom and vaginal contraceptives." (30) One of the goals set forth in *Promoting Health/Preventing Disease* is to reduce STD incidence by increasing utilization of these preventive measures. Specifically, the national goal is to increase

condom use among sexually active men and women from the current estimated 10 percent to 25 percent by 1990 (3, p. 27).

While there are at least 16 sexually transmitted diseases (31, p. 98), only 4 will be discussed in this chapter. Selection was based on an assessment of the public health impact of these diseases as measured by the extent to which they are addressed in the current literature, and/or the availability of published incidence rates by race.
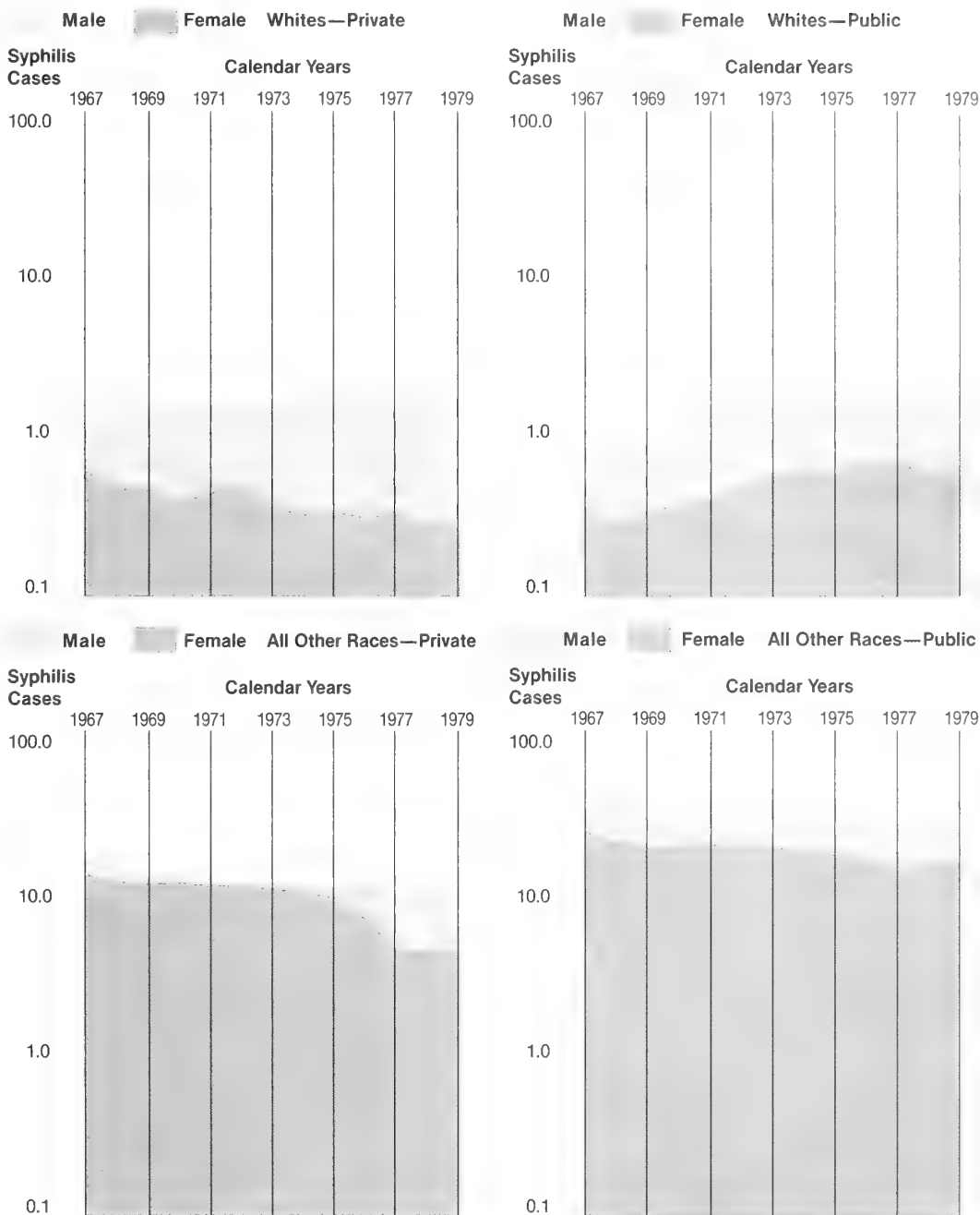
1. Syphilis

"Syphilis may be a fatal or seriously disabling disease causing irreversible damage to the cardiovascular, central nervous, or musculoskeletal systems. One of every 13 untreated patients with syphilis will develop cardiovascular disease, one of 25 will become crippled or incapacitated, and one of 44 will develop irreversible damage to the central nervous system. One patient in every 200 with untreated syphilis will become blind." (32, p. 482)

The greatest increases in syphilis occurred during the 1960's (33, p. 78). The observed decreases in late and latent syphilis between 1967 and 1979 (see Figure 3) were attributed to effective serological screening leading to identification and treatment of early cases (33, p. 78).

Syphilis ranks third in prevalence (after chicken pox and gonorrhea) among reported communicable diseases in the United States. In 1979, there were 67,049 reported cases of syphilis (all stages), 32.0 per 100,000 population. This represents a

Figure 3

Annual reported cases in the United States (excluding California and New York) per 100,000 population of primary and secondary syphilis by race (white and all other), sex, and reporting source for 1967–1979.

Source: "Syphilis in the United States: 1967–1979," Sexually Transmitted Diseases, Fichtner, R.R., Aral, S.O., Blount, J.H., Zaidi, A.A., Reynolds, G.H., Danon, W.M. 1983:10: 72–76. Table 1, p. 73.

33.5 percent decrease from the 1969 rate of 46.2 (34, p. 16). The primary and secondary syphilis case rate was 9.6 per 100,000 population in 1969, increased to 12.1 in 1974, then dropped to 11.4 in 1979. Late and latent syphilis rates show the greatest reduction during this 10-year period, from 27.3 in 1969 to 9.7 in 1979.

Syphilis case rates per 100,000 population are higher among nonwhites than whites, as shown in Figure 3. Syphilis case rates by age, race, and setting are found in Table 23, which excludes California and New York (because these States do not consistently report cases by race and sex). Syphilis rates have generally decreased between 1967 and 1979, but rates among all age groups of white men in public clinics and older white men in private clinics have increased, as have those of young white women in public clinics. In fact, three striking changes occurred between 1967 and 1979. First, the increase in attack rate among white men as reported from public clinics contributed to the increase in the attack rate differential of white male to white female cases, from 1.5:1 in 1967 to 3:1 in 1979 (33). Second, the ". . . percentage of white men with early syphilis who attended public clinics and reported at least one male sex partner increased from 38 percent in 1969 to 70 percent in 1979." These findings suggest that an essential change occurred in the epidemiology of early syphilis in the United States as

reflected in the increasing levels of transmission of syphilis within the white males of the population (33). Third, the increase in syphilis attack rates among white males between 1967 and 1979 reduced the racial differential among males. The nonwhite-to-white differential for attack rates was reduced for both sexes, but this was influenced more by rises in the white rates than by reductions in the nonwhite rates.

A higher incidence of syphilis is also found among American Indians/Alaska Natives than the population as a whole (see Table 24). This population had a syphilis rate almost twice that of the total population in 1967 (99.9 per 100,000 population compared with 52.5), and although both groups showed greatly reduced rates, this differential increased to 2.25 times that of the total population by 1981 (72.0 compared with 32.0).

Even though rates are being reduced for all races and most sex/age group components, the nonwhite (primarily black and American Indian/Alaska Native) rates remain substantially higher in all components.

2. Gonorrhea

Since 1965, gonorrhea has been the most frequently reported communicable disease in the United States (35). Approximately 1 million cases have been reported each year since 1975 (34, p. 5). Authoritative sources report that "the number of infections occurring exceeds reported cases, and an estimated 1.6 to 2.0 million cases occur annually." (34,

Figure 4

Composition by diagnosis of total reported morbidity due to syphilis in the United States for 1969 and 1979.
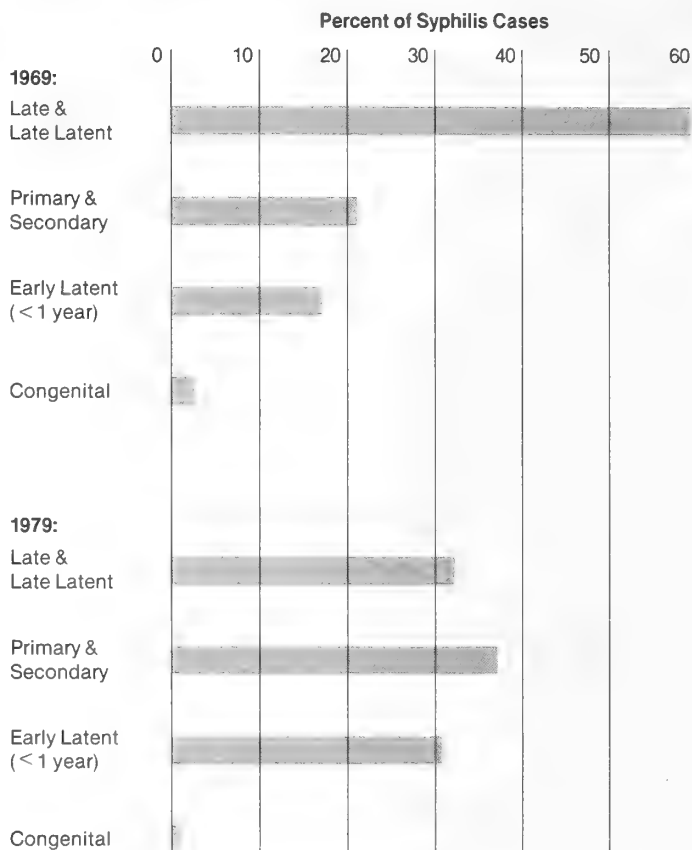
Source: "Gonorrhea in the United States: 1967–1969," Sexually Transmitted Diseases, Zaidi, A.A., Aral, S.O., Reynolds, G.H., Blount, J.H., Jones, O.G., Fichtner, R.R., 1983:10 72–76. Table 1, p. 73.

p. 5) In 1979, 59 percent of reported gonorrhea cases occurred among men (34, p. 5). However, recent increases have been greater among women, and the complications of gonorrhea are more keenly felt by women.

"Pelvic inflammatory disease is the most serious complication of gonorrhea and chalmydial infections. More than 850,000 cases are diagnosed and treated each year; the major proportion of these are associated with past or present sexually transmitted disease. In 1978, it was estimated that 150,000 new cases of pelvic inflam-

matory disease were caused by gonorrhea." (3, p. 25) "Complications of gonorrhea in women account for 78,000 to 97,200 hospital admissions, totaling 518,200 to 645,600 hospital days annually." (34, p. 6) More information about pelvic inflammatory disease is found in Chapter IV, Section C.

Gonorrhea attack rates were consistently higher among nonwhites of both sexes than among whites from 1967 to 1979 (see Figure 5). For most race/sex/age groups, the

Figure 5

Reported cases of gonorrhea by race and sex. United States (excluding California and New York), 1967–1979.
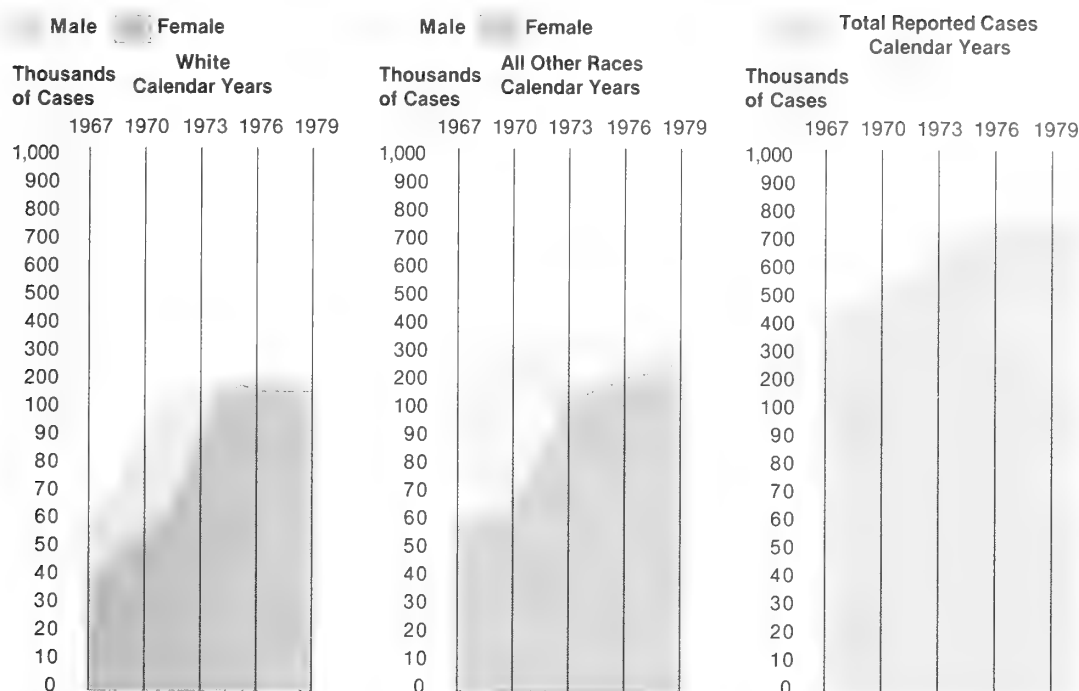
Source: "Gonorrhea in the United States: 1967–1979," Sexually Transmitted Diseases, Zaidi, A.A., Aral, S.O., Reynolds, G.H., Blount, J.H., Jones, O.G. Fichtner, R.R., 1983:10: 72–76. Table 1, p. 73.

rates peaked in 1975, followed by a small drop and plateau. The 1979 rates, even so, are higher than the 1967 rates in almost all race/sex/age groups. For nonwhite females under 25, the increase continued through 1979. However, the generally sharper increases among whites since 1967, coupled with some plateauing of nonwhite attack rates since 1975, has produced racial differentials that are lower in 1979 than they were in 1967.

From 1969 to 1979, the nonwhite gonorrhea rate among males dropped 11.4 percent and the white gonorrhea rate increased 55.8 percent, reducing the racial differential from 21 to 12. The racial differential among females also decreased from 1969 to 1979 from 14.7 to 9.3 because the age-adjusted gonorrhea rate among non-white women increased 105.0 percent while the rate among white women increased 202.1 percent.

The gonorrhea incidence among American Indians/Alaska Natives increased 142 percent between 1965 and 1975 (see Table 24). While this group had 5 times the gonorrhea case rate of the total population in 1971 and 3.7 times the U.S. rate in 1975, the differential dropped to 1.65 of the U.S. rate in 1981 because of greater white in-

creases. The rate of gonorrhea incidence for American Indians/Alaska Natives was reduced in the years between 1975 and 1981 to about the 1965 level of incidence (718.4 for 1981). From 1965 to 1981, the U.S. rate went from 169.6 to a high in 1976 of 470.5, and down to a rate of 435.2 in 1981.

In these circumstances, the improved racial differentials are not seen as a measure of positive change.

3. Herpes II

"Genital infection with herpes simplex virus is a disease of major health importance. Although data on incidence and prevalence are generally unavailable, records from sexually transmitted

disease clinics in the United States and the United Kingdom indicate an increase in the number of cases and rate of diagnosis of herpes during the past 10 years." (36, p. 19) Since herpes II is not included in the U.S. national reporting system for communicable diseases, estimates of the prevalence and incidence of this disease vary widely. The prevalence is estimated to be 8 to 12 percent in the sexually active population (29, p. 75), however, and is believed to be substantially higher in various subgroups of the population.

"There is no effective prophylaxis or treatment, and relapsing episodes over long periods of time make genital herpes a disease of major importance to public health." (36, p. 15)

"In 1978, the American Social Health Association established a program entitled HELP to facilitate dissemination of information to patients suffering from the disease." (36, p. 15) While no large-scale and/or ongoing study of this disease is available to make a prevalence comparison between the racial minorities and the remainder of the population, higher rates have been observed both at one point in time and over time among lower socioeconomic groups (37) and among predominantly white affluent groups (36).
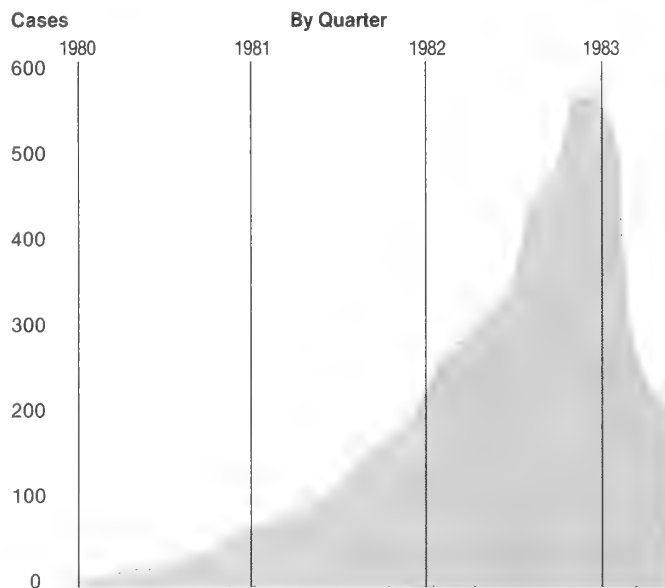
4. Acquired Immunodeficiency Syndrome (AIDS)

Acquired immuno-deficiency syndrome (AIDS) is a new illness in the United States with a rapidly increas-

ing incidence (see Figure 6). It was first recognized among homosexual men in California and New York City but has spread to other population groups and other parts of the country (38). It is a serious health problem in the United States today (38, p. 341) primarily because of its high mortality rate, highly infectious nature, and unknown cause and cure. "As long as the cause remains unknown, the ability to understand the natural history of AIDS and to undertake preventive measures is somewhat compromised." (39) Also, as long as the cause remains unknown, categorization of the disease as an STD may be in error. It is discussed in this section even though its highest incidence is among homosexual men. As more is learned about this disease, however, it may be categorized as a highly infectious disease with other modes of transmission, and might better qualify for inclusion among all acute diseases.

"As of December 19, 1983, physicians and health departments in the United States have reported a total of 3,000 patients who meet the surveillance definition for acquired immunodeficiency syndrome (AIDS). Of the 3,000 patients, 90.0 percent have been between 20 and 49 years old. Fifty-nine percent of cases have occurred among whites, 26 percent among blacks, and 14 percent among persons of Hispanic origin. Women accounted for 7 percent of the cases. A total of 1,283 (43 percent) of reported patients

Figure 6

Acquired immunodeficiency syndrome (AIDS) cases, by quarter of diagnosis—United States, first quarter 1980 through December 19, 1983*

Cases   **By Quarter**

*Excludes 15 cases diagnosed before 1980 and 7 cases which date of diagnosis was not reported.

Source: Center for Disease Control. Morbidity and Mortality Weekly Report Update: Acquired Immunodeficiency Syndrome (AIDS). United States, Vol. 32, No. 52. January 6, 1984. Figure 3, p. 68.

are known to have died." (40, p. 688) This mortality rate, although quite high, may be an underestimate because some recently diagnosed cases have not been followed long enough to assess the outcome (38).

"Groups at highest risk of acquiring AIDS continue to be homosexual and bisexual men (71 percent of cases), and intravenous drug abusers (17 percent); 12 percent of patients have other or unknown risk factors. These include persons born in Haiti and now living in the United States (5 percent of total cases), patients with hemophilia (1 percent), and heterosexual contacts of persons at increased risk for acquiring AIDS (1 percent)." (40, p. 689)

As this book is being written, announcements in the

media indicate that the probable AIDS-causing virus has been isolated, and there have been predictions that a serum that would produce both a cure and a prophylaxis against AIDS is probably 2 to 5 years away.

D. Mental Retardation

The mentally retarded person is one with "significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period." (41) Mental retardation is a state of impairment and is not a disease, a syndrome, or a symptom. It can include both children and adults who, by virtue of their impairments in intellectual functioning and behavior, are unable to

measure up to expectations and demands. The state of impairment termed "mental retardation" covers over 200 conditions and is associated with and coexists with many causes, including psychological and polygenic influences as well as biological deficits. Persons considered to be mentally retarded include those with a broad spectrum of human performance ranging from total dependency to near normality.

It is important to recognize and provide for the special needs of those affected in terms of services for the individual, the family, and the community. At the same time, prevention of mental retardation is possible, and it has been demonstrated that programs such as those outlined below can lessen the risks of mental retardation for some and can simplify and improve the effectiveness of health service delivery. Even though there are no reliable national rates available, it is estimated that more than 6 million people, 3 percent of the total population, are mentally retarded. More than 100,000 babies born each year are likely to be retarded (42).

Genetic conditions leading to mental retardation are covered briefly in the following section. Mental retardation in the low income segment of the population probably reflects the impact of socioeconomic conditions (e.g., the impact of low income on diet and health care). Strong relationships have been found between an infant's metabolism and diet and mental and nervous disorders (43). Premature and low birthweight infants, which are more common

among the race and age groups identified earlier in this chapter, are more vulnerable to those neurological and physical disorders that can cause mental retardation.

E. Selected Genetic Diseases

The estimates of the magnitude of genetically transmitted or influenced disorders and malformations vary "of necessity because of the dynamic process they attempt to describe." The World Health Organization's Expert Committee on Human Genetics estimated that 4 percent of the world's population suffers from some serious genetic disorder, and other U.S. studies "reported that 6 percent of pediatric admissions were from genetic disorders and an additional 15 percent have a major genetic component." (44, p. 289) This is about 9 percent of all newborns.

In some categories of genetic disease the incidence is very small, and in others quite large. The usefulness of programs to identify and deal with genetic problems is usually assessed in terms of the cost of the test and solutions versus the cost of care for the affected individuals. The recent advances in the tests for parental genetic problems and the ability to identify and deal with problems in the fetus *in utero,* early and throughout a pregnancy, or in a newborn early in its life, are important means to reduce some of the problems heretofore caused by these defects. We do not question whether a parent carrying genes for a hereditary defect should have

children, or would want to. We also do not address whether a fetus with major defects or impairments should be aborted. These are choices of the individuals involved; the significant point is that for some genetic problems, informed decisions are now possible.

Very early screening to identify some problems, e.g., inborn errors of metabolism, soon after an infant is born permits preventive or ameliorative actions. Among the screening efforts which have been successful and cost effective are those to detect phenylketonuria (PKU). If PKU is detected within the first month of life and treated with a special diet, serious mental retardation can be prevented. Prior to screening and treatment, PKU accounted for about 1 percent of State hospital residents. Galactosemia can result in death or in both mental and physical damage unless the infant is diagnosed and is placed on an inexpensive galactose-free infant formula, which is lifesaving and allows for normal development in most cases. Congenital hypothyroidism usually leads to severe mental and somatic retardation if undetected and untreated with an inexpensive and easily managed program. This problem, prior to screenings, accounted for 1 to 2 percent of State hospital residents. Screening and preventive actions for the Rh factor have long been known. For some other conditions, drugs or other treatment can be used to avoid most untoward effects.

It is estimated that each of us carries, on average, 4.5 harmful recessive genes. Massive screening to identify

these, even though theoretically possible with current scientific advances in the study of genetics, is seen as having undesirable Orwellian overtones (43). Examples of diseases for which carrier-detection screening offers useful decision-making information for parents include Tay-Sachs disease, Duchenne's muscular dystrophy, Lesch-Nyban syndrome, and hemophilia. While it is possible to determine the carrier status of persons with sickle cell trait, and while major screening efforts to identify carriers continue, this special problem of blacks can range from a painful, totally disabling condition to a mild form with long periods that are pain free and allow normal functioning. It is thus more difficult to use a positive screening result as a good basis for decision making about whether a carrier of the sickle cell trait wishes to have children.

Whether mild or severe, sickle cell anemia interferes with the health of its victims throughout their lives, often necessitating hospitalization for some episodes, and considerably shortening life spans (44). The gene responsible for sickle cell anemia leads to the formation of an abnormal form of hemoglobin (1, p. 167). The lifelong complications suffered by patients with sickle cell anemia are due in part to the markedly short life span of their red blood cells (45, p. 94). While there is no known cure nor a completely safe and effective treatment of sickle cell anemia, current therapy includes massive blood transfu-

sions. "Improved blood banking techniques, better understanding of the underlying pathophysiology of the microcirculation, and prompt intervention in states of severe anemia, infection, and acidosis have led to improved survival." (45, p. 94)

Sickle cell anemia affects an estimated 50,000 people in the United States, and over 12 million Americans are carriers of the sickle cell trait (46). Sickle cell anemia is especially prevalent among blacks in America (as well as Africa), but occurs also among whites (1, p. 167). One estimate of the incidence of the sickle cell *trait* (from a 1980 publication) is 9 percent among blacks in America (1, p. 167). Another recent estimate of sickle cell *anemia* (rather than the trait) is 1:625 (0.0189 percent) among black births (45, p. 94). The most recent mortality data that could be located was for 1967, when 340 blacks and 6 whites died of this disease (44). In 1978, the death rate of blacks from all forms of anemia was 2.5 per 100,000 population (5).

Other inherited disorders linked to certain racial/ethnic groups include cystic fibrosis, which primarily affects whites; Tay-Sachs, which occurs almost exclusively among Jews of Eastern European descent; and thalassemia, with a relatively high incidence among people of Mediterranean and Pacific Island origin (46). Phenylketonuria (PKU), which, if undetected and treated, usually causes

mental retardation, is most prevalent among people of European origin (47). Carriers of sickle cell anemia, Tay-Sachs, and thalassemia, as stated above, can be detected and informed about the risks of their children having the disease. Children of parents who have the sickle cell trait and who are carriers of Tay-Sachs and thalassemia traits have a 25 percent probability of inheriting the disorder and a 50 percent probability of themselves being carriers. Tay-Sachs disease also can now be detected prenatally. PKU can be detected when an infant is only a few days old, and now almost all infants born in the United States are being screened for this disease. Other inborn errors of metabolism can also be detected early, and a growing number of States are also screening for these so that corrective or ameliorative treatments can be undertaken.

Table 1

Maternal mortality rates by race.

Year	Total[a]	White[a]	Other[a]	Black[a]	Other Races/White Differential
1981	8.5	6.3	17.3	20.4	2.75
1980	9.2	6.7	19.8	21.5	2.96
1970	21.5	14.4	55.9	59.8	3.88
1960	37.1	26.0	97.9	103.6	3.77
1950	83.3	61.1	221.6	223.0	3.63
1940	376.0	319.8	773.5	781.7	2.42
1930	673.2	608.9	1173.9		1.93

[a]Rates per 100,000 live births.
Source. Compiled from 1) Vital Statistics of the United States, 1975. Vol. II, Mortality, Pt. A, and Vital Statistics Rates in U.S. 1940-1960; Final Mortality Statistics, 1977, DHEW No. (PHS) 79-1120; Vol. 28, No. 1 Suppl., May 11, 1979. In Pratt, M.W. "The Demography of Maternal and Child Health" Maternal and Child Health Practices, Problems, Resources and Methods of Delivery. Wallace, H M., Gold,E.M., Oglesby, A.C. (eds.) John Wiley and Sons, New York, 1982. 2) National Center for Health Statistics: Advance report, Final Mortality Statistics, 1980 Monthly Vital Statistics Report, Vol. 32, No. 4 Supp. DHHS Pub. No. (PHS) 83-1120. Hyattsville, MD, August 1983 and NCHS Advance Report of Final Mortality Statistics, 1981. Vol. 33, No. 3 Supplement DHHS Pub. No. (PHS) 84-1120.

Table 2

Maternal deaths and rates for Indians and Alaska Natives and All Races.

| | Number | | Rate[1] Per 100,000 Live Births | | | Ratio of Indian to: | |
Calendar Year	Indians and Alaska Natives	U.S. All Races	Indians and Alaska Natives	U.S. All Races	U.S. Other than White	U.S. All Races	U.S. Other than White
1979	4	NA					
1978	4	321	11.1	9.6	23.0	1.2	0.5
1977	2	373	8.3	11.2	26.0	0.7	0.3
1976	1	390	8.7	12.3	26.5	0.7	0.3
1975	4	340	11.8	12.8	29.0	0.9	0.4
1974	4	462	16.3	14.6	35.1	1.1	0.5
1973	4	477	23.7	15.2	34.6	1.6	0.7
1972	9	612	30.8	18.8	38.5	1.6	0.8
1971	9	668	35.0	18.8	45.3	1.9	0.8
1970	7	803	32.3	21.5	55.9	1.5	0.6
1969	6	801	32.8	22.2	55.7	1.5	0.6
1968	9	859	37.0	24.5	63.6	1.5	0.6
1967	7	987	49.1	28.0	69.5	1.8	0.7
1966	16	1,049	54.6	29.1	72.4	1.9	0.8
1965	12	1,189	63.4	31.6	83.7	2.0	0.8
1964	14	1,343	74.2	33.3	89.9	2.2	0.8
1963	24	1,466	83.7	35.8	96.9	2.3	0.8
1962	18	1,465	89.7	35.2	95.9	2.5	0.9
1961	17	1,573	66.5	36.9	101.3	1.8	0.7
1960	8	1,579	67.9	37.1	97.9	1.8	0.7
1959	18	1,588	68.8	37.4	102.1	1.8	0.7
1958	16	1,581	82.6	37.6	101.8	2.2	0.8

NA Not Available.
[1]Indian and Alaska Native rates are 3-year averages centered in the year specified. U.S. rates are for the year specified.
Source: FY 1984 Budgeted Appropriation Indian Health Service "Chart Series" Tables. Vital Events Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD, April, 1982.

Table 3

Maternal deaths and maternal mortality rates for selected causes by race: United States, 1980.

[Maternal deaths are those assigned to complications of pregnancy, childbirth, and the puerperium, category numbers 630-676 of the *Ninth Revision International Classification of Diseases, 1975* Rates per 100,000 live births in specified group]

Cause of death (Ninth Revision International Classification of Diseases, 1975)		All races	White	All other		All races	White	All other	
				Total	Black			Total	Black
		Number				Rate			
Complications of pregnancy, childbirth and the puerperium	630–676	334	193	141	127	9.2	6.7	19.8	21.5
Pregnancy with abortive outcome	630–638	62	27	35	31	1.7	0.9	4.9	5.3
Ectopic pregnancy	633	46	22	24	20	1.3	0.8	3.4	3.4
Spontaneous abortion	634	3	1	2	2	0.1	0.0	0.3	0.3
Legally induced abortion	635	5	1	4	4	0.1	0.0	0.6	0.7
Illegally induced abortion	636	1	—	1	1	0.0	—	0.1	0.2
Other pregnancy with abortive outcome	630–632, 637–638	7	3	4	4	0.2	0.1	0.6	0.7
Direct obstetric causes	640–646, 651–676	261	161	100	90	7.2	5.6	14.0	15.3
Hemorrhage of pregnancy and childbirth	640–641, 666	44	27	17	12	1.2	0.9	2.4	2.0
Toxemia of pregnancy	642, 4–642.9, 643	60	36	24	23	1.7	1.2	3.4	3.9
Obstructed labor	660	—	—	—	—	—	—	—	—
Complications of the puerperium	670–676	93	62	31	30	2.6	2.1	4.3	5.1
Other direct obstetric causes	642.0–642.3, 644–646, 651–659, 661–665, 667–669	64	36	28	25	1.8	1.2	3.9	4.2
Indirect obstetric causes	647–648	11	5	6	6	0.3	0.2	0.8	1.0
Delivery in a completely normal case	650	—	—	—	—	—	—	—	

Table 4

Infant mortality rates for earlier years (1974, 1975, or 1976) and later years (1979, 1980, or 1981) for selected countries, showing percent change between the two years cited and annual average percent change in rate.

Rank		Country (Years)	Rate		Percent Change	
Earlier	Later	Earlier Later	Earlier	Later	Total	Annual Average
1	1	Sweden (1976) (1980)	8.3	6.9	− 16.87	−4.22
2	2	Japan (1976) (1980)	9.3	7.5	− 19.35	− 4.84
3	4	Denmark (1976) (1980)	10.3	8.4	− 18.45	− 4.61
4	5	Netherlands (1975) (1981)	10.6	8.2	− 22.64	− 3.77
5	7	Switzerland (1976) (1980)	10.7	9.1	− 14.95	− 3.74
6	3	Finland (1974) (1980)	11.0	7.6	− 30.91	− 5.15
7	6	Norway (1975) (1980)	11.1	8.1	− 27.03	− 5.41
8	18	England and Wales (1976) (1979)	14.2	12.8	− 9.86	− 3.29
9	9	Australia (1975) (1980)	14.3	10.7	− 25.17	− 5.03
10	8	France (1974) (1980)	14.7	10.1	− 31.29	− 5.22
11	10	Canada (1975) (1979)	15.0	10.9	− 27.33	− 6.83
12	16	UNITED STATES (1976) (1980)	15.2	12.6	− 17.11	− 4.28
13	16	Germany (East) (1975) (1980)	15.9	12.6	− 20.75	− 4.15
14	11	New Zealand (1975) (1981)	16.0	11.7	− 26.88	− 4.48
15	13	Belgium (1975) (1980)	16.2	12.2	− 24.69	− 4.94
16	12	Ireland (1974) (1980)	17.8	11.2	− 37.09	− 6.18
17	14	Germany (West) (1975) (1981)	19.7	12.3	− 37.56	− 6.26
18	16	Austria (1975) (1981)	20.5	12.6	− 38.54	− 6.42
19	20	Czechoslovakia (1975) (1981)	20.9	16.8	− 19.62	− 3.27
20	19	Israel (1975) (1980)	22.9	15.3	− 33.19	− 6.64

Source. *World Health Statistics Annual*, WHO, Geneva. 1978 Vol. 1. and 1982 Vol 1. In "The Demography of Maternal and Child Health" *In Maternal and Child Health Practices Problems Resources and Methods of Delivery*. Wallace, H.M., Gold, E.M., Oglesby, A C , (eds.) John Wiley and Sons, 1982 Table 4.16, p 92

Table 5

Infant, maternal, and neonatal mortality rates, and fetal mortality ratios, by race: 1940 to 1981.

[Deaths per 1,000 live births, except as noted. Prior to 1980, excludes Alaska and Hawaii. Beginning 1970, excludes deaths of nonresidents of U.S.]

Item	1940	1950	1960	1965	1970	1975	1976	1977	1978	1979	1980	1981
Infant deaths[2]	47.0	20.2	26.0	24.7	20.0	16.1	15.2	14.1	13.8	13.1	12.6	11.9
White	43.2	26.8	22.9	21.5	17.8	14.2	13.3	12.3	12.0	11.4	11.0	10.5
Black and other	73.8	44.5	43.2	40.3	30.9	24.2	23.5	21.7	21.1	19.8	19.1	17.8
Black	72.9	43.9	44.3	41.7	32.6	26.2	25.5	23.6	23.1	21.8	21.4	20.0
Maternal deaths[3]	378.0	83.3	37.1	31.8	21.5	12.8	12.3	11.2	9.6	9.6	9.2	8.5
White	319.8	61.1	26.0	21.0	14.4	9.1	9.0	7.7	6.4	8.6	6.7	6.3
Black and other	773.5	221.6	97.9	83.7	55.9	29.0	26.5	26.0	23.0	22.7	19.8	17.3
Black	781.7	223.0	103.6	86.3	59.8	31.3	29.5	29.2	25.0	25.1	21.5	20.4
Fetal deaths[4]	(NA)	19.2	16.1	16.2	14.2	10.7	10.5	9.9	9.7	9.4	9.1	8.9
White	(NA)	17.1	14.1	13.9	12.4	9.5	9.3	8.7	8.5	8.4	8.1	8.0
Black and other	(NA)	32.5	26.8	27.2	22.6	16.0	15.2	14.6	14.7	13.0	13.3	12.7
Neonatal deaths[5]	28.8	20.5	18.7	17.7	15.1	11.6	10.9	9.9	9.5	8.9	8.5	8.0
White	27.2	19.4	17.2	16.1	13.8	10.4	9.7	8.7	8.4	7.9	7.5	7.1
Black and other	39.7	27.5	26.9	25.4	21.4	16.8	16.3	14.7	14.0	12.9	12.5	11.8
Black	39.9	27.8	27.8	28.5	22.8	18.3	17.9	16.1	15.5	14.3	14.1	13.4

NA Not available.

[1]Represents deaths of infants under 1 year old, exclusive of total deaths.

[2]Per 100,000 live births from deliveries and complications of pregnancy, childbirth, and the puerperium. Deaths for 1979 calculated according to the ninth revision of the *International Classification of Diseases*, for the earlier years calculated according to the revision in use at the time; see text, p. 57

[3]Beginning 1970, includes only those deaths with stated or presumed period of gestation of 20 weeks or more; for prior years. Includes gestational age not stated.

[4]Represents deaths of infants under 28 days old, exclusive of fetal deaths.

Source: U.S. National Center for Health Statistics, *Vital Statistics of the United States*, ? and unpublished data. Most of the data taken from U.S. Bureau of the Census. *Statistical Abstract of the U.S.*, 1982-1983. U.S. Government Printing Office, Washington, DC. December, 1982. Table 111, p. 75. and National Center for Health Statistics Advance Report, Final Mortality Statistics, 1980 and 1981, Vol. 32, No. 4S (DHHS Pub No. (PHS) 83-1120) and Vol. 33, No. 3 (DHHS Pub No. (PHS) 84-1120) and unpublished Fetal Mortality Data.

Table 6

Infant mortality rates by age for Indians and Alaska Natives and United States, all races.
(rates per 1,000 live births)

Calendar Year	Infant Mortality Rate	Neonatal				Postneonatal 28-364 Days
		0-27 Days	Under 1 Day	1-6 Days	7-27 Days	
Indians and Alaska Natives						
1977-1979	15.5	7.8	3.9	2.5	1.3	7.6
1976-1978	16.4	8.2	4.4	2.5	1.3	8.2
1975-1977	17.7	8.8	4.8	2.7	1.3	8.9
1974-1976	18.7	9.2	5.1	2.8	1.3	9.5
1973-1975	18.8	9.2	4.8	3.0	1.4	9.6
1972-1974	19.7	9.3	5.0	2.9	1.4	10.4
1971-1973	21.9	10.3	5.8	3.0	1.4	11.0
1970-1972	22.7	11.0	6.5	2.9	1.6	11.6
1969-1971	24.6	12.2	6.8	3.6	1.8	12.3
1968-1970	27.0	12.9	7.0	3.9	2.0	14.1
1967-1969	30.0	14.3	7.8	4.5	2.0	15.7
1966-1968	34.0	15.7	8.4	4.9	2.3	18.4
1965-1967	36.8	16.1	8.6	5.1	2.4	20.7
U.S. All Races						
1978	13.8	9.5	5.1	2.9	1.5	4.3
1977	14.1	9.9	5.3	3.1	1.5	4.2
1976	15.2	10.9	5.9	3.1	1.6	4.3
1975	16.1	11.6	6.3	3.7	1.6	4.5
1974	16.7	12.3	6.7	3.7	1.6	4.4
1973	17.7	13.0	7.2	4.2	1.5	4.7
1972	18.5	13.7	8.1	4.3	1.3	4.8
1971	19.1	14.2	8.2	4.6	1.4	4.9
1970	20.0	15.1	8.8	4.8	1.5	4.9
1969	20.9	15.6	9.2	4.9	1.5	5.3
1968	21.8	16.1	9.5	5.1	1.5	5.7
1967	22.4	16.5	9.6	5.3	1.6	5.9
1966	23.7	17.2	10.0	5.6	1.6	6.5

[1]Source: *Monthly Vital Statistics Report*, NCHS, Vol. 29, No. 6, September 17, 1980, and neonatal by age—unpublished from NCHS. Taken from FY 1984 Budgeted Appropriation Indian Health Service "Chart Series" Tables. Vital Events Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD, April, 1982

Table 7

Asian infant mortality rate in the United States and percent of all U.S. infant deaths, 1979.

Race Group	Infant Mortality Rate, 1979	Percent of U.S. Infant Deaths, 1979
Chinese	5.9	0.15
Japanese	4.6	0.08
Filipino	3.8	0.12
Other Asians	8.3	0.67

Source: National Center for Health Statistics: Vital Statistics of the United States, 1979 Volume II, Mortality, Part A. DHHS Publication No. (PHS) 84-1101. Public Health Service, Washington, DC. U.S. Government Printing Office, 1984

Table 8

Selected major causes of infant mortality in the United States, 1971 and 1979
(per 100,000 live births)[1]

Condition/Disease	1971[2]			1979[3]		
	Total	White	Other	Total	White	Other
Congenital Anomalies	299.8	309.9	253.8	255.4	259.5	238.3
SIDS	NA	NA	NA	151.1	124.2	260.9
Respiratory Distress Syndrome	127.0	116.9	173.7	156.2	142.3	213.0
Complications of Pregnancy	149.0	146.7	205.8	46.4	37.9	81.2
Asphyxia of Newborn	230.2	204.4	348.9	31.7	27.1	50.1
Immaturity Unqualified	207.7	170.4	379.0			
Disorders relating to short gestation and low birthweight				100.0	75.6	200.2

NA Not available

[1]These data may not be completely comparable because of changes in the Classification of Diseases

[2]From the 8th Revision of the International Classification of Diseases

[3]From the 9th Revision of the International Classification of Diseases.

Source: National Center for Health Statistics: Vital Statistics of the United States, 1979 Volume II, Mortality, Part A DHHS Publication No (PHS) 84-1101 Public Health Service, Washington, DC. U S Government Printing Office, 1984

Table 9

Asian neonatal and postneonatal mortality rates in the United States, 1979.

Racial Group	Mortality Rates, 1979	
	Neonatal	Postneonatal
Chinese	3.3	2.6
Japanese	3.4	1.2
Filipino	2.6	1.2
Other Asian	5.5	2.8

Source: National Center for Health Statistics: Vital Statistics of the United States, 1979 Volume II, Mortality, Part A. DHHS Publication No (PHS) 84-1101 Public Health Service, Washington, DC. U S Government Printing Office, 1984

Table 10

Percent of infants of low birthweight, by race: United States, 1950-1980.

Year	All races	White	All other races Total	Black
1980	6.8	5.7	11.5	12.5
1979[4]	6.9	5.8	11.6	12.1
1978	7.1	5.9	11.9	12.9
1977	7.1	5.9	11.9	12.8
1976	7.3	6.1	12.1	13.0
1975	7.4	6.3	12.2	13.1
1974	7.4	6.3	12.4	13.1
1973	7.6	6.4	12.5	13.3
1972	7.7	6.5	12.9	13.6
1971	7.7	6.6	12.7	13.4
1970	7.9	6.8	13.3	13.9
1969	8.1	7.0	13.5	14.1
1968	8.2	7.1	13.7	—
1967	8.2	7.1	13.6	—
1966	8.3	7.2	13.9	—
1965	8.3	7.2	13.8	—
1964	8.2	7.1	13.9	—
1963[1]	8 2	7.1	13.6	—
1962[1]	8.0	7.0	13.1	—
1961	7.8	6.9	13.0	—
1960	7.7	6.8	12.8	—
1959	7.7	6.8	12.9	—
1958[2]	7.7	6.8	12.9	—
1957[2]	7.6	6.8	12.4	—
1956[2]	7.5	6.7	12.0	—
1955[2,3]	7.6	6.8	11.7	—
1954[2,3]	7.4	6.8	11.3	—
1953[2,3]	7.6	7.0	11.3	
1952[2,3]	7.6	7.0	11.1	—
1951[2,3]	7.5	7.0	10.7	—
1950[2,3]	7.5	7.1	10.2	—

[1]Figures by color exclude data for residents of New Jersey.
[2]Excludes data for Massachusetts
[3]Excludes data for Connecticut
[4]Definition changed from under 2501 grams to under 2500 grams.
Source: National Center for Health Statistics: Advance report of final natality statistics, 1980 *Monthly Vital Statistics Report*, Vol 31, No. 8, supp DHHS Pub., No (PHS) 83-1120 Public Health Service, Hyattsville, MD, November 1982. Table 1, p.24

Table 11

Births of low birthweight (under 2,500 grams)[1] and percent low birthweight, by age of mother, Indians and Alaska Natives in reservation States, and United States, all races.

Age of Mother	Indians & Alaska Natives 1977-1979			U.S. All Races, 1978		
	Total Live Births	Number Low Weight	Percent Low Weight	Total Live Births	Number Low Weight	Percent Low Weight
All Ages	89,898	5,865	6.5	3,333,279	236,342	7.1
Under 20 years	22,555	1,589	7.0	554,179	55,148	10.0
20-24 years	33,281	2,063	6.2	1,139,524	80,699	7.1
25-29 years	20,408	1,187	5.8	1,015,183	60,319	6.0
30-34 years	9,431	675	7.2	474,318	28,693	6.1
35-39 years	3,332	263	7.9	126,196	9,465	7.5
40 years and over	891	88	9.9	23,879	2,018	8.5

[1]Starting in 1979 the International Classification of Diseases (ICD-9) revised the definition of low birthweight to births of under 2,500 grams. Previously the definition had been 2,500 grams or less. 1977 and 1978 low birthweight data presented above reflect the previous definition.
Source: FY 1984 Budgeted Appropriation Indian Health Service "Chart Series" Tables. Vital Events Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD, April, 1982

Table 12

Percent distribution of live births by birthweight and percent low birthweight, by Hispanic origin of mother, and by race of child for mothers of non-Hispanic origin: Total of 22 reporting States, 1980

Birthweight	Origin of mother									
		Hispanic						Non-Hispanic		
	All origins[1]	Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total[2]	White	Black
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 500 grams	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
500-999 grams	0.4	0.4	0.3	0.5	0.4	0.4	0.3	0.4	0.3	1.0
1,000-1,499 grams	0.6	0.5	0.5	0.7	0.5	0.5	0.6	0.6	0.5	1.2
1,500-1,999 grams	1.3	1.1	1.1	1.7	1.1	1.0	1.1	1.4	1.1	2.5
2,000-2,499 grams	4.4	4.0	3.6	6.0	3.5	3.8	4.8	4.5	3.7	7.6
2,500-2,999 grams	16.7	16.9	15.8	22.6	15.7	16.3	19.5	16.8	14.6	24.4
3,000-3,499 grams	37.4	39.3	38.9	40.2	39.5	40.7	39.7	37.1	36.5	38.4
3,500-3,999 grams	28.6	28.3	29.4	22.5	29.5	28.2	26.3	28.6	31.1	19.6
4,000-4,499 grams	8.6	7.8	8.4	4.9	8.2	7.7	6.3	8.7	9.9	4.2
4,500-4,999 grams	1.6	1.4	1.6	0.7	1.3	1.2	1.0	1.6	1.9	0.7
5,000 grams or more	0.2	0.2	0.3	0.1	0.2	0.2	0.3	0.2	0.3	0.1
Percent low birthweight[3]	6.9	6.1	5.6	8.9	5.6	5.8	7.0	7.0	5.7	12.5

[1]Includes origin not stated.
[2]Includes races other than white and black
[3]Weight of less than 2,500 grams (5 lbs 8 oz)
Source: National Center for Health Statistics, S.J. Ventura, "Births of Hispanic Parentage, 1980." *Monthly Vital Statistics Report,* Vol. 32, No. 6 Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD, September 1983. Table 14, p. 16.

Table 13

Total fertility rates and birth rates by age of mother, by race of child: United States, 1970-80
(Total fertility rates are sums of birth rates for 5-year-age groups multiplied by 5. Birth rates are live births per 1,000 women in specified group, enumerated as of April 1 for 1970 and 1980 and estimated as of July 1 for all other years)

| Year and race of child | Total fertility rate | Age of mother | | | | | | | | | |
| | | 10-14 years | 15-19 years | | | 20-24 years | 25-29 years | 30-34 years | 35-39 years | 40-44 years | 45-49 years |
			Total	15-17 years	18-19 years						
All races											
1980[1]	1,839.5	1.1	53.0	32.5	82.1	115.1	112.9	61.9	19.8	3.9	0.2
1979[1]	1,808.0	1.2	52.3	32.3	81.3	112.8	111 4	60.3	19.5	3.9	0.2
1978[1]	1,760.0	1.2	51.5	32.2	79.8	109.9	108.5	57.8	19.0	3.9	0.2
1977[1]	1,789.5	1.2	52.8	33.9	80.9	112.9	111.0	56.4	19.2	4.2	0.2
1976[1]	1,738.0	1.2	52.8	34.1	80.5	110.3	106.2	53.6	19.0	4.3	0.2
1975[1]	1,774.0	1.3	55.6	36.1	85.0	113.0	108.2	52.3	19.5	4.6	0.3
1974[1]	1,835.0	1.2	57.5	37.3	88.7	117.7	111.5	53.8	20.2	4.8	0.3
1973[1]	1,879.0	1.2	59.3	38.5	91.2	119.7	112.2	55.6	22.1	5.4	0.3
1972[1]	2,010.0	1.2	61.7	39.0	96.9	130.2	117.7	59.8	24.8	6.2	0.4
1971[2]	2,266.5	1.1	64.5	38.2	105.3	150.1	134.1	67.3	28.7	7.1	0.4
1970[2]	2,480.0	1.2	68.3	38.8	114.7	167.8	145.1	73.3	31.7	8.1	0.5
White											
1980[1]	1,748.5	0.6	44.7	25.2	72.1	109.5	112.4	60.4	18.5	3.4	0.2
1979[1]	1,715.5	0.6	43.7	24.7	71.0	107.0	110.8	59.0	18.3	3.5	0.2
1978[1]	1,667.5	0.6	42.9	24.9	69.4	104.1	107.9	56.6	17.7	3.5	0.2
1977[1]	1,703.0	0.6	44.1	26.1	70.5	107.7	110.9	55.3	18.0	3.8	0.2
1976[1]	1,652.0	0.6	44.1	26.3	70.2	105.3	105.9	52.6	17.8	3.9	0.2
1975[1]	1,686.0	0.6	46.4	28.0	74.0	108.2	108.1	51.3	18.2	4.2	0.2
1974[1]	1,748.5	0.6	47.9	28.7	77.3	113.0	111.8	52.9	18.9	4.4	0.2
1973[1]	1,783.0	0.6	49.0	29.2	79.3	114.4	112.3	54.4	20.7	4.9	0.3
1972[1]	1,906.5	0.5	51.0	29.3	84.3	124.8	117.4	58.4	23.3	5.6	0.3
1971[2]	2,160.5	0.5	53.6	28.5	92.3	144.9	134.0	65.4	26.9	6.4	0.4
1970[2]	2,385.0	0.5	57.4	29.2	101.5	163.4	145.9	71.9	30.0	7.5	0.4
All other											
1980[1]	2,323.0	3.9	94.6	68.3	133.2	145.0	115.5	70.8	27.9	6.5	0.4
1979[1]	2,309.5	4.1	96.5	70.5	134.9	144.3	114.6	68.3	27.3	6.4	0.4
1978[1]	2,264.5	4.0	96.0	70.4	134.4	142.1	111.9	65.2	26.9	6.4	0.4
1977[1]	2,278.5	4.3	99.5	74.8	136.8	142.3	111.5	63.4	27.3	6.9	0.5
1976[1]	2,222.5	4.3	99.9	75.5	137.2	138.9	107.6	59.5	26.9	6.9	0.5
1975[1]	2,276.0	4.7	106.4	80.5	146.1	141.0	108.7	58.8	27.6	7.5	0.5
1974[1]	2,338.5	4.6	111 3	84.9	153.1	145.5	109.5	59.9	28.8	7.6	0.5
1973[1]	2,443.0	5.0	117.5	90.5	160.9	151.6	111 2	63.2	30.9	8.6	0.6
1972[1]	2,627.5	4.7	123.8	93.8	173.3	163.4	119.3	68.9	34.8	9.9	0.7
1971[2]	2,919.5	4.7	128.5	94.0	185.6	184.0	134.6	79.3	40.2	11.7	0.9
1970[2]	3,066.7	4.8	133.4	95.2	195.4	196.8	140.1	82.5	42.2	12.6	0.9
Black											
1980[1]	2,266.0	4.3	100.0	73.6	138.8	146.3	109.1	62.9	24.5	5.8	0.3
1979[1]	2,263.2	4.6	101.7	75.7	140.4	146.3	108.2	60.7	24.7	6.1	0.4
1978[1]	2,218.0	4.4	100.9	75.0	139.7	143.8	105.4	58.3	24.3	6.1	0.4
1977[1]	2,251.0	4.7	104.7	79.6	142.9	144.4	106.4	57.5	25.4	6.6	0.5
1976[1]	2,187.0	4.7	104.9	80.3	142.5	140.5	101.6	53.6	24.8	6.8	0.5
1975[1]	2,243.0	5.1	111.8	85.6	152.4	142.8	102.2	53.1	25.6	7.5	0.5
1974[1]	2,298.5	5.0	116.5	90.0	158.7	146.7	102.2	54.1	27.0	7.6	0.6
1973[1]	2,411.0	5.4	123.1	96.0	166.6	153.1	103.9	58.1	29.4	8.6	0.6
1972[1]	2,601.0	5.1	129.8	99.5	179.5	165.0	112.4	64.0	33.4	9.8	0.7
1971[2]	2,902.0	5.1	134.5	99.4	192.6	186.6	128.0	74.8	38 9	11.6	0.9
1970[2]	3,098.7	5.2	147.7	101.4	204.9	202.7	136.3	79.6	41.9	12.5	1.0

[1]Based on 100 percent of births in selected States and on a 50-percent sample of births in all other States, see Technical notes.
[2]Based on a 50-percent sample of births
Note: Rates for 1971-79 have been revised, see Technical notes.
Source: National Center for Health Statistics: Advance report of final natality statistics, 1980. *Monthly Vital Statistics Report*, Vol. 31, No 8, supp DHHS Pub., No (PHS) 83-1120. Public Health Service, Hyattsville, MD, November 1982. Table 4, p. 13

Table 14
Percent distribution of live births in the United States by live birth order, 1980.

Group	Live Birth Order (Parity)		
	1	2-3	≥4
All Races	42.8	46.6	10.6
White	43.5	46.8	9.7
Other	39.6	45.3	15.1
Black	39.3	45.2	15.0
Hispanic	37.8	45.4	16.8

Source: National Center for Health Statistics: Monthly Vital Statistics Reports. Advance. Final Natality Characteristics 1980, Vol. 31, No. 8S, 11/30/82 and Births of Hispanic Parentage, 1980, Vol. 36, No. 6S, 9/23/83

Table 15
Births to unmarried women, by race and age of mother: 1950 to 1980.
[Prior to 1960, excludes Alaska and Hawaii. Beginning 1970, excludes births to nonresidents of U.S. Includes estimates for States in which marital status data were not reported. No estimates included for misstatements on birth records or failures to register births. See *Historical Statistics, Colonial Times to 1970*, series B 28-35]

RACE AND AGE OF MOTHER	1950	1955	1960	1965	1970	1975	1976	1977	1978	1979	1980
NUMBER (1,000)											
Total live births	141.6	183.3	224.3	291.2	398.7	447.9	468.1	515.7	543.9	597.8	665.7
White	53.5	64.2	82.5	123.7	175.1	186.4	197.1	220.1	233.6	263.0	320.1
Black and other	68.1	119.2	141.8	167.5	223.6	261.6	271.0	295.5	310.2	334.8	345.7
Black	(NA)	(NA)	(NA)	(NA)	215.1	249.6	258.8	281.6	293.4	315.8	325.7
Under 15 years	3.2	3.9	4.6	6.1	9.5	11.0	10.3	10.1	9.4	9.5	9.0
15-19 years	56.0	68.9	67.1	123.1	190.4	222.5	225.0	239.7	239.7	253.2	262.8
20-24 years	43.1	55.7	68.0	90.7	128.7	134.0	145.4	168.6	186.5	210.1	237.3
25-29 years	20.9	28.0	32.1	36.8	40.6	50.2	55.4	62.4	70.0	80.6	99.6
30-34 years	10.8	16.1	18.9	19.6	19.1	19.8	21.0	23.7	26.5	31.3	41.0
35 years and over	7.7	10.7	13.6	15.1	12.4	10.4	10.9	11.1	11.7	13.1	16.1
BIRTH RATE[1]											
Total[2]	14.1	19.3	21.6	22.5	28.4	24.6	24.7	26.0	26.2	27.8	29.4
White[2]	6.1	7.9	9.2	11.6	13.8	12.6	12.7	13.7	13.9	15.1	17.6
Black and other[2]	71.2	87.2	98.3	97.6	89.9	80.4	78.1	79.4	78.7	80.9	77.2
Black[2]	(NA)	(NA)	(NA)	(NA)	95.5	85.6	83.2	84.5	83.1	85.3	82.9
15-19 years	12.6	15.1	15.3	16.7	22.4	24.2	24.0	25.5	25.4	26.9	27.6
20-24 years	21.3	33.5	39.7	39.9	38.4	31.6	32.2	34.7	36.1	36.7	40.9
25-29 years	19.9	33.5	45.1	49.3	37.0	28.0	27.5	28.5	29.4	31.0	34.0
30-34 years	13.3	22.0	27.8	37.5	27.1	18.1	17.8	17.2	17.3	18.2	21.1

NA Not available.
[1]Rate per 1,000 unmarried women (never-married, widowed, and divorced).
[2]Covers woman aged 15-44 years.
Source: National Center for Health Statistics: Vital Statistics of the United States, annual, and unpublished data. National Center for Health Statistics: Advance report of final natality statistics, 1980. *Monthly Vital Statistics Report*, Vol. 31, No. 8, Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, Md, November 1982. Table 15, p. 25 and Table 16, pp. 26-27. *In* U S Bureau of the Census, *Statistical Abstract of the United States: 1982-1983*. U.S. Government Printing Office. Washington, DC, December, 1982. Table 97, p. 66.

Table 16

Number and rate of births to unmarried women, by age and Hispanic origin of mother, and by race of child for mothers of non-Hispanic origin: Total of 22 reporting States, 1980.

Age of mother	All origins[1]	Origin of mother								
		Hispanic						Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total[2]	White	Black
					Number					
All ages	399,272	72,531	43,822	15,593	713	5,769	6,634	300,803	115,467	175,205
Under 15 years	5,324	821	551	184	3	16	67	4,233	1,034	3,121
15-19 years	152,474	23,924	15,470	5,049	220	877	2,308	119,287	47,350	68,636
15 years	12,899	1,965	1,267	436	18	42	202	10,269	3,393	6,654
16 years	23,966	3,799	2,507	794	31	102	365	18,683	7,198	11,049
17 years	33,795	5,219	3,443	1,080	41	155	500	26,560	10,721	15,062
18 years	39,947	6,166	3,969	1,303	59	244	591	31,352	12,717	17,754
19 years	41,867	6,775	4,284	1,436	71	334	650	32,423	13,321	18,117
20-24 years	141,655	25,475	15,433	5,485	244	1,967	2,346	107,080	40,909	62,637
25-29 years	62,053	12,734	7,123	2,795	132	1,540	1,144	44,828	16,401	26,555
30-34 years	26,890	6,457	3,513	1,441	68	928	507	18,388	7,045	10,409
35-39 years	8,891	2,530	1,400	528	38	353	211	5,719	2,223	3,161
40 years and over . . .	1,985	590	332	111	8	88	51	1,268	505	686
					Rate per 1,000 unmarried women					
15-44 years[3]	30.3	52.0	54.5	74.5	9.3	40.9		27.7	. . .	. . .
15-19 years	29.1	39.7	41.8	62.4	6.6	27.0		27.7	. . .	. . .
15-17 years	21.7	28.3	29.9	43.9	4.3	18.6		20.8	. . .	. . .
18-19 years	41.4	60.5	63.9	96.8	10.6	41.1		39.0	. . .	. . .
20-24 years	42.5	76.5	79.5	114.1	14.0	58.6		38.7	. . .	. . .
25-29 years	34.2	71.1	72.0	94.8	14.8	64.2		30.2	. . .	. . .
30-34 years	22.0	53.9	56.2	64.8	11.4	49.3		18.5	. . .	. . .
35-44 years[4]	6.9	19.6	22.0	22.3	4.1	17.2		5.5	. . .	. . .

[1]Includes origin not stated
[2]Includes races other than white and black.
[3]Rates computed by relating total births to unmarried mothers, regardless of age of mother, to unmarried women 15-44 years.
[4]Rates computed by relating births to unmarried mothers aged 35 years and over to unmarried women aged 35-44 years.
Note: Population data to compute rates for non-Hispanic women by race are not available: see Technical notes
Source: National Center for Health Statistics, S.J. Ventura, Births of Hispanic Parentage, 1980. *Monthly Vital Statistics Report*, Vol. 32, No. 6, Supp. DHHS Pub. No. (PHS) 83-1120 Public Health Service, Hyattsville, MD, September 1983 Table 11, p. 14

Table 17

Live births by month of pregnancy prenatal care began and race of child: United States, 1980

[Based on 100 percent of births in selected States and on a 50-percent sample of births in all other States; see Technical notes]

Race of child	Total	Month of pregnancy prenatal care began										
		1st and 2d month	3d month	4th month	5th month	6th month	7th month	8th month	9th month	No prenatal care	Not stated
All races[1]	3,612,258	1,812,854	867,071	350,229	189,800	112,311	73,122	43,010	18,072	46,211	99,578
White	2,898,732	1,540,198	701,759	257,389	130,604	76,297	49,918	29,438	12,309	28,627	72,193
Black	589,616	219,121	136,718	79,871	51,163	30,759	19,171	10,858	4,499	15,459	21,997

[1]Includes races other than white and black

Source: National Center for Health Statistics: Advance report of final natality statistics,1980. *Monthly Vital Statistics Report*, Vol. 31, No. 8, Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD, November, 1982. Table 21, p. 32.

Table 18

Percent distribution of live births by month of pregnancy prenatal care began and median number of prenatal visits, by Hispanic origin of mother, and by race of child for mothers of non-Hispanic origin: Total of 22 reporting States, 1980

Measure of prenatal care	All origins[1]	Origin of mother								
		Hispanic						Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total[2]	White	Black
Month of pregnancy prenatal care began					Percent distribution					
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1st and 2nd month . .	50.2	36.9	36.1	32.3	62.9	35.5	42.5	52.3	56.2	37.6
3d month	24.5	23.4	23.6	22.8	19.8	23.2	23.9	24.7	25.1	23.5
4th-6th month	19.4	27.8	28.5	28.7	13.4	28.1	24.4	18.1	15.2	29.3
7th-9th month	4.2	8.2	8.5	7.9	2.8	8.2	7.5	3.6	2.7	6.4
No prenatal care	1.6	3.8	3.4	8.3	1.0	5.0	1.7	1.3	0.8	3.2
Prenatal visits[3]					Median					
Number[4]	11.0	9.5	9.3	9.2	11.4	9.6	10.0	11.1	11.4	10.5

[1]Includes origin not stated
[2]Includes races other than white and black.
[3]Excludes data for California and New Mexico, which did not report number of prenatal visits
[4]Excludes births to mothers with no prenatal care.

Source: National Center for Health Statistics, S.J. Ventura, Births of Hispanic Parentage, 1980. *Monthly Vital Statistics Report*, Vol. 32, No. 6 Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD, September 1983. Table 13, p. 15.

Table 19

Hospital births and births attended by physicians as a percent of all births by race.

Characteristic	1940	1950	1960	1970	1975	1980
Births in hospital	55.8	88.0	96.6	99.4	98.7	99.0
White	59.9	92.8	98.8	99.7	98.9	99.0
Other	26.7	57.9	85.0	97.8	98.1	99.1
Black	NA	NA	NA	NA	NA	99.1
Births attended by physician	85.8	95.1	97.8	99.5	99.1	97.2
White	96.4	98.7	99.5	99.8	99.2	97.4
Other	50.8	82.8	88.5	98.0	98.7	96.3
Black	NA	NA	NA	NA	NA	96.6

NA Not available

Source: Vital Statistics of the U.S., Vol. 1, Natality et al. *In* "The Demography of Maternal and Child Health" *In Maternal and Child Health Practices Problems Resources and Methods of Delivery*, Wallace, H.M., Gold, E.M., Oglesby, A.C., (eds.) John Wiley and Sons, 1982. p. 96.

Table 20

Number and percent distribution of family planning visits for females by selected characteristics, according to race and Hispanic origin: United States, 1980.

Selected Characteristics	All races[1]	Race		Hispanic origin		All races[1]	Race		Hispanic origin	
		White	Black	Hispanic	Non-Hispanic		White	Black	Hispanic	Non-Hispanic
	Number in thousands					Percent distribution				
All visits	9,261	6,529	2,540	1,168	8,093	100.0	100.0	100.0	100.0	100.0
Education										
Less than 12 years	3,692	2,613	1,007	725	2,967	39.9	40.0	39.6	62.1	36.7
12 years	3,647	2,476	1,100	334	3,313	39.4	37.9	43.3	28.6	40.9
13 years or more	1,921	1,440	433	108	1,813	20.7	22.1	17.0	9.2	22.4
Student status										
Student	2,496	1,712	737	118	2,379	27.0	26.2	29.0	10.1	29.4
Not a student	6,764	4,817	1,803	1,050	5,715	73.0	73.8	71.0	89.9	70.6
Public assistance income										
Family receives public assistance income	1,313	607	680	149	1,164	14.2	9.3	26.8	12.8	14.4
Family does not receive public assistance income	7,948	5,922	1,860	1,019	6,929	85.8	90.7	73.2	87.2	85.6
Initial visits	1,779	1,373	350	227	1,552	100.0	100.0	100.0	100.0	100.0
Education										
Less than 12 years	814	616	175	142	672	45.7	44.8	50.1	62.4	43.3
12 years	619	480	119	64	555	34.8	35.0	33.9	28.1	35.8
13 years or more	347	277	56	22	325	19.5	20.2	16.0	9.5	20.9
Student status										
Student	672	504	150	41	631	37.8	36.7	42.8	18.0	40.7
Not a student	1,108	870	200	186	921	62.2	63.3	57.2	82.0	59.3
Public assistance income										
Family receives public assistance income	213	116	88	25	187	12.0	8.4	25.2	11.2	12.1
Family does not receive public assistance income	1,587	1,257	262	202	1,365	88.0	91.6	74.8	88.8	87.9
Return visits	7,481	5,156	2,190	940	6,541	100.0	100.0	100.0	100.0	100.0
Education										
Less than 12 years	2,879	1,997	832	583	2,295	38.5	38.7	38.0	62.0	35.1
12 years	3,028	1,996	982	271	2,758	40.5	38.7	44.8	28.8	42.2
13 years or more	1,575	1,163	377	86	1,488	21.0	22.6	17.2	9.2	22.8
Student status										
Student	1,825	1,209	587	77	1,748	24.4	23.4	26.8	8.2	26.7
Not a student	5,657	3,947	1,603	863	4,794	75.6	76.6	73.2	91.8	73.3
Public assistance income										
Family receives public assistance income	1,100	491	592	123	977	14.7	9.5	27.0	13.1	14.9
Family does not receive public assistance income	6,381	4,664	1,598	817	5,564	85.3	90.5	73.0	86.9	85.1

[1]Includes visits for races other than white and black

Note: Numbers may not add to totals due to rounding.

Source: National Center for Health Statistics: B.L. Hudson, Basic Data on Visits to Family Planning Service Sites: U.S. 1980 Vital and Health Statistics, Series 13, No. 68. DHHS Publication No. (PHS) 82-1729. Public Health Service, Hyattsville, MD. July 1982 Table 4, p. 12.

Table 21

Contraceptive use by currently married women 15-44 years old, by age, race, and method of contraception: 1965-1976

[1965 data from National Fertility Survey, 1973 and 1976 data.]

Race and Method of Contraception	Total, 15-44 Years Old			15-29 Years Old			30-44 Years Old		
	1965	1973	1976	1965	1973	1976	1965	1973	1976
White Women									
Currently married (1,000)	23,427	24,249	24,795	9,166	10,963	11,218	14,261	13,286	13,577
Percent using contraception	64.1	70.5	68.8	63.4	70.7	70.0	64 5	70.4	67.8
Percent distribution of users of contraception	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100 0
Wife sterilized	6.5	11.6	13.9	2.8	5.7	6.1	8.7	16.5	20 5
Husband sterilized	5.5	11.9	14.2	3.2	5.6	6.0	7.0	17.1	21.1
Pill	24.0	35.6	32.9	42.4	52.9	50.6	12.8	21.2	17 8
Intra-uterine device	1.1[1]	9.4	9.2	1.5[1]	11.9	10.5	.8[1]	7.4	8 1
Diaphragm	10.4	3.6	4.4	6.6	2.6	4.1	12.8	4.4	4.6
Condom	22.4	14.1	10.9	19.2	10.5	9.7	24.4	17.1	11 9
Foam	3.1	5.0	4.2	4.5	5.3	4.8	2.2	4.7	3.8
Rhythm	11.5	4.1	5.1	8.0	2.0	4.0	13.7	5.9	6.1
All other	15.5	4.8	5.3	11.9	3.5	4.3	17.7	5.9	6.1
Black Women									
Currently married (1,000)	2,091	2,081	2,169	(NA)	964	993	(NA)	1,117	1,177
Percent using contraception	56.2	60.0	58.6	62.2	63.7	61.0	51.1	56.8	56.5
Percent distribution of users of contraception	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wife sterilized	15.3	22.7	18.7	7.4	9.8	8.6	23.4	35.2	27.9
Husband sterilized	.6[1]	1.7[1]	3.0[1]	.4[1]	.7[1]	.3[1]	.7[1]	2.7[1]	5.4[1]
Pill	21.6	43.8	38.0	30.9	63.9	56.0	12.3	24.3	21.5
Intra-uterine device	2.8	12.7	10.6	4.8	13.1	9.1	.7	12.4	11.9
Diaphragm	5.0	2.0[1]	3.0[1]	3.3	1.2[1]	1.4[1]	6.7	2.8[1]	4.5[1]
Condom	17.4	5.3	7.9	18.7	3.1[1]	8.4	16.0	7.5	7.4
Foam	6.3	5.0	6.5	8.1	3.5	4.9	4.5	6.6	8.0
Rhythm	2.6	1.3[1]	2.4[1]	2.9	1.6[1]	3.1[1]	2.2	.9[1]	1.8[1]
All other	28.5	5.3	10.0	23.5	3.1	8.3	33.5	7.6	11.6

NA Not available.

[1]Figure does not meet standards of reliability or precision

Source: 1) "Trends in Contraceptive Practice: 1965-1973." *Family Planning Perspectives,* Vol. 8, No. 2, 1976 2) U.S. Bureau of the Census, *Statistical Abstract of the United States: 1982-83.* U.S. Government Printing Office, Washington, DC, December, 1982. Table 100, p. 68

Table 22

Legal abortions, by selected characteristics: 1973 to 1980.

(Number of abortions from surveys conducted by source, characteristics from the U.S. Centers for Disease Control's (CDC) annual abortion surveillance summaries, with adjustments for changes in States reporting data to the CDC each year)

Characteristic	Number (1,000)								Percent Distribution			Abortion Ratio[1]	
	1973	1974	1975	1976	1977	1978	1979	1980	1973	1975	1980	1973	1979
Total legal abortions	744.6	898.6	1,034.2	1,179.3	1,316.7	1,409.6	1,497.7	1,563.9	100.0	100.0	100.0	193	297
Age of women:													
Less than 15 years old	11.6	13.4	15.3	15.8	15.7	15.1	16.2	15.3	1.6	1.5	1.0	476	599
15-19 years old	232.4	278.3	324.9	382.7	396.6	418.8	444.6	444.8	31.2	31.4	28.6	280	444
20-24 years old	240.6	286.6	331.6	392.3	449.7	489.4	525.7	549.4	32.3	32.1	35.4	181	304
25-29 years old	129.6	162.7	188.9	220.5	246.7	266.0	284.2	303.8	17.4	18.2	19.6	126	208
30-34 years old	72.6	89.8	100.2	110.1	124.4	134.3	142.0	153.1	9.7	9.7	9.6	165	213
35-39 years old	41.0	48.8	52.7	56.7	61.7	65.3	65.1	66.6	5.5	5.1	4.3	246	322
40 years old and over	16.8	19.0	20.5	21.3	22.0	20.7	19.9	20.9	2.3	2.0	1.3	334	447
Race of women:													
White	548.8	629.3	701.2	784.9	888.8	909.4	1,062.4	1,093.6	73.7	67.8	70.4	178	272
Black and other	195.8	269.3	333.0	394.4	427.9	440.2	435.3	460.3	26.3	32.2	29.6	252	385
Marital status of women:													
Married	216.2	248.2	271.9	290.0	299.7	350.6	322.2	319.9	29.0	26.3	20.6	74	99
Unmarried	528.4	650.4	762.3	889.3	1,017.0	1,059.0	1,175.5	1,234.0	71.0	73.7	79.4	564	660
Number of prior live births:													
None	375.2	482.5	499.3	562.6	742.5	798.1	868.2	900.0	50.4	48.3	57.9	242	365
1	137.4	155.5	206.8	244.4	249.4	271.3	287.1	304.8	18.5	20.0	19.6	108	201
2	102.2	130.1	156.6	181.5	186.5	198.0	207.0	215.6	13.7	15.2	13.9	190	279
3	61.7	70.3	86.8	97.7	80.0	83.3	82.1	82.9	8.3	8.4	5.3	228	399
4 or more	68.2	60.2	84.4	93.1	58.4	58.9	53.3	50.6	9.1	8.1	3.3	196	256
No. of prior induced abortions:													
None	(NA)	762.1	822.1	911.3	966.7	994.5	1,023.3	1,040.8	(NA)	79.5	67.0	(NA)	(NA)
1	(NA)	112.6	170.4	213.2	267.8	315.5	350.4	371.0	(NA)	16.5	23.8	(NA)	(NA)
2 or 3	(NA)	24.0	41.7	54.7	82.2	99.6	124.0	142.1	(NA)	4.0	9.2	(NA)	(NA)
Weeks of gestation:													
Less than 9 weeks	284.3	399.4	480.6	559.9	657.9	707.8	748.5	800.0	36.2	46.5	51.5	(NA)	(NA)
9-10 weeks	221.6	256.5	290.4	333.8	361.2	388.4	412.9	416.5	29.7	28.1	26.8	(NA)	(NA)
11-12 weeks	130.6	134.9	151.1	171.3	179.5	187.7	203.6	201.8	17.5	14.6	13.0	(NA)	(NA)
13 weeks or more	106.2	107.8	112.1	114.4	118.2	125.7	132.6	136.7	14.6	10.8	8.7	(NA)	(NA)

NA Not available.

[1]Number of abortions per 1,000 abortions and live births. For 1980, total abortion ratio is 300.

Source. 1973-1978, S.K. Henshaw, J.D. Forrest, E. Sullivan, and C. Th?, *Abortion 1977-1978: Need and Services in the United States. Each State and Metropolitan Area.* The Alan Guttmacher Institute, New York, NY, 1981 (copyright); 1979-1980. *Abortion 1979-1980. Need and Services in the United States. Each State and Metropolitan Area,* AGI, New York, NY. forthcoming. Taken from U.S. Bureau of the Census, *Statistical Abstract of the U.S.:* 1982-1983, U.S. Government Printing Office, Washington, DC. December 1982. Table 101, p. 68 National Center for Health Statistics, D. Burnham, Ph.D. Induced Terminations of Pregnancy: Reporting States, 1980 Monthly Vital Statistics Report Vol. 32, No. 85. DHHS Pub. No. (PHS) 84-1120 PHS, Hyattsville, Md, Dec. 1983.

Table 23

Age-specific attack rates (per 100,000 population) for reported cases of primary and secondary syphilis in the United States (excluding California and New York), 1967-1979.

Provider (Race)	Men				Women			
Year	15-19	20-24	25-29	30-39	15-19	20-24	25-29	30-39
Public (White)								
1967	1.0	5.2	3.7	2.2	1.0	2.3	1.6	0.8
1979	3.0	11.7	12.4	8.0	2.4	2.7	1.5	0.7
Public (other)*								
1967	114.6	317.6	249.5	125.2	124.1	183.4	118.9	59.5
1979	72.0	214.9	182.1	96.9	62.0	75.7	46.5	23.9
Private (White)								
1967	1.8	7.4	6.1	3.8	1.4	3.1	2.3	1.2
1979	1.2	4.7	6.6	5.7	1.2	1.0	0.7	0.5
Private (other)								
1967	34.1	111.9	99.7	50.9	45.6	82.7	53.8	29.6
1979	10.6	28.3	35.3	21.5	11.8	19.6	18.7	9.7

*This category includes all races other than white.
Source: "Syphilis in the United States: 1967-1979," Sexually Transmitted Diseases, Fichtner, R.R., Aral, S O , Blount, J.H , Zaidi, A.A., Reynolds, G., and Darron, W M., 1983: 10: 77-80. Table 1, p. 79.

Table 24

Rates for venereal diseases—American Indians and Alaska Natives compared to United States, all races.
[Rates per 100,000 Population]

Calendar Year	Gonorrhea		Syphilis, All Stages	
	IHS	U.S.[1]	IHS	U.S.[1]
1981	718.4	435.2	72.0	32.0
1980	798.4	443.3	78.8	30.4
1979	950.6	459.5	68.1	30.7
1978	1,219.9	468.3	88.2	30.0
1977	1,393.7	465.9	129.2	30.0
1976	1,580.2	470.4	166.4	33.7
1975	1,731.7	469.2	172.3	37.7
1974	1,667.2	428.7	148.7	52.0
1973	1,794.2	404.9	149.9	42.0
1972	1,923.6	371.6	207.8	44.2
1971	1,647.5	328.2	180.5	47.0
1970	1,182.0	297.5	172.1	45.3
1969	1,026.6	268.6	161.8	46.3
1968	842.3	235.7	145.8	48.8
1967	751.7	207.3	99.9	52.5
1966	727.8	181.9	89.3	54.4
1965	716.6	169.6	93.0	58.9

[1]Sexually Transmitted Disease (STD) Statistical Letter, Calendar Year 1981, Centers for Disease Control, PHS, DHHS, 1982, and publications in this series for previous years.
Source: Sexually Transmitted Diseases (STD) Fact Sheet, DHHS, Pub. No (CDC) 81-8195, Edition 36, Calendar Year 1980 Taken from FY 1984 Budgeted Appropriation Indian Health Service "Chart Series" Tables. Vital Events Branch, Office of Program Statistics, Division of Resource Coordination, Indian Health Service, Rockville, MD, April 1982.

Table 25

Age-specific and age-adjusted gonorrhea rates (per 100,000) for white men and women in the United States (excluding New York and California), 1967-1979.

Sex, Age (Years)	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Men													
≤14	1	1	1	2	2	2	3	3	3	3	3	3	4
15-19	156	170	203	251	316	365	369	377	393	370	341	336	340
20-24	553	638	703	780	901	1,004	1,007	1,028	1,060	1,007	955	922	909
25-29	329	350	381	399	470	507	549	580	642	622	638	629	626
30-39	118	128	133	145	163	174	183	198	229	238	251	250	255
40-49	37	38	39	44	45	46	47	50	59	62	68	69	75
≥50	13	13	13	14	14	15	14	17	18	19	20	20	21
Total													
Unadjusted	94	106	121	141	173	197	206	220	240	239	238	237	240
Age-adjusted	107	118	129	143	165	182	187	195	210	205	203	199	201
Women													
≤14	3	4	4	5	8	10	12	12	14	13	13	14	14
15-19	121	144	185	234	354	487	587	650	705	661	645	643	644
20-24	178	202	237	295	383	542	686	757	802	744	723	692	692
25-29	82	87	101	111	150	193	253	285	318	293	302	290	293
30-39	27	31	31	36	46	62	76	79	88	88	86	82	83
40-49	8	9	10	10	12	15	17	18	19	18	19	19	19
≥50	3	3	3	3	4	4	5	6	6	6	5	5	5
Total													
Unadjusted	38	44	54	67	95	131	164	184	201	191	189	185	186
Age-adjusted	36	41	48	58	80	109	136	149	161	151	149	145	145

Source: "Gonorrhea in the United States: 1967-1979," Sexually Transmitted Diseases, Zaidi, A.A., Aral, S.O., Reynolds, G.H., Blount, J.H., Jones, O.G., Fichtner, R.R., 1983:10: 72-76. Table 1, p. 73.

Table 26

Age-specific and age-adjusted gonorrhea rates (per 100,000) for nonwhite men and women in the United States (excluding New York and California), 1967-1979.

Sex, Age (Years)	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Men													
≤14	33	42	44	51	50	56	56	57	57	56	55	53	53
15-19	4,223	4,551	5,121	5,295	5,322	5,559	5,724	5,772	5,687	5,326	4,958	4,711	4,446
20-24	11,578	12,984	13,967	14,007	13,600	13,693	12,780	13,173	13,991	13,225	12,678	11,853	10,809
25-29	7,430	7,570	7,877	7,760	7,825	8,012	8,184	8,651	9,073	8,487	8,487	8,154	7,543
30-39	2,750	2,866	2,950	2,989	2,947	2,992	2,960	3,092	3,266	3,172	3,193	3,077	2,942
40-49	810	817	834	835	813	816	804	836	894	888	870	886	832
≥50	186	181	204	202	205	201	219	231	266	256	292	275	250
Total													
Unadjusted	2,059	2,237	2,495	2,654	2,733	2,876	2,872	3,025	3,228	3,144	3,112	3,002	2,819
Age-adjusted	2,385	2,549	2,714	2,728	2,695	2,742	2,695	2,794	2,926	2,776	2,715	2,587	2,404
Women													
≤14	50	56	66	80	82	100	130	144	163	158	147	158	165
15-19	1,852	2,090	2,414	2,608	2,948	3,854	5,161	5,683	5,980	6,084	6,024	6,268	6,099
20-24	2,586	2,767	3,163	3,252	3,465	4,365	5,792	6,341	6,648	6,694	6,594	6,643	6,264
25-29	1,351	1,318	1,526	1,532	1,597	2,040	2,589	2,698	2,954	2,799	2,808	2,874	2,756
30-39	446	455	479	501	501	632	809	836	882	801	785	798	765
40-49	113	112	100	106	113	133	161	190	187	185	158	159	154
≥50	35	25	40	33	34	46	49	63	75	55	50	52	47
Total													
Unadjusted	573	626	739	802	889	1,159	1,555	1,723	1,852	1,873	1,864	1,922	1,847
Age-adjusted	551	581	660	688	737	941	1,232	1,338	1,418	1,399	1,377	1,409	1,853

Source: "Gonorrhea in the United States: 1967-1979," Sexually Transmitted Diseases, Zaidi, A.A., Aral, S.O., Reynolds, G.H., Blount, J.H., Jones, O.G., Fichtner, R.R., 1983:10: 72-76. Table 1, p. 73

Table 27

Estimated frequency of selected genetic disorders

Genetic Type	Examples	Number Per Million Births
I. Single gene		17,412
Autosomal dominants		9,555
	Brachydactyly	6
	Muscular atrophy	40
	Deaf mutism	46
	Retinoblastoma	58
	Marfan's syndrome	20
	Osteogenesis imperfecta	20
	Achondroplasia	100
Autosomal recessives		1,260
	Albinism	130
	Alkaptonuria	5
	Galactosemia	50
	Ichthyosis	10
	Hemoglobinopathy	200
	Phenylketonuria	60
	Cystic fibrosis	60
Sex-linked recessives		397
	Hemophilia A	20
	Duchenne progressive muscular dystrophy	50
Sex-linked dominants		6,200
	Glucose-6-phosphate dehydrogenase deficiency	6,000
	Vitamin D resistant rickets	50
II. Chromosomal abnormalities		5,000
Autosomal		2,500
	Down's syndrome	1,600
	Trisomy D	230–450
	Trisomy G	690
	Trisomy E	230
Sex		2,500
	Klinefelter's (XXY)	1,000
	XYY	690
	Turner's (XO)	230
	XO	230

Table 27

Estimated frequency of selected genetic disorders—Continued

Genetic Type	Examples	Number Per Million Births
III. Complex malformations		30,000
	Cardiac Defects	5,000
	Strabismus	2,300
	Clubfoot (Talipes equinovarus)	2,290
	Idiopathic scoliosis	2,000
	Anencephaly	1,700
	Cleft palate and/or harelip	1,700
	Spina bifida and meningocele	940
	Congenital dislocation of hip	667
	Hydrocephalus	590
	Digestive tract anomalies	420
	Genito urinary tract anomalies	350
	Congenital cataract	170
	Skin anomalies	70
	Congenital amputations	42
IV. Incompatibilities		4,200
	Erythroblastosis	4,200
	Auto-immune disease	?
V. Polygenic traits		850,000
	Allergic conditions	600,000
	Hypertension	300,000
	Duodenal ulcers	100,000
	Mental retardation	30,000
	Pyloric stenosis	3,000
	Gout	2,750
	Schizophrenia	1,000
	Epilepsy	500
	Diabetes mellitus	130
	Deafness	100
	Cystic fibrosis	60

Source: Cunningham, G. in Maternal and Child Health Practices: Problems, Resources and Methods of Delivery. Eds: Wallace, H., Gold, E., and Oglesby, A., 1982

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Chapter IV

Acute Disease Conditions

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Overview

In this chapter, three basic types of data were employed to measure the impact of acute disease conditions on the disadvantaged in comparison with the rest of the population. The first type of data is self-reported acute diseases from health interviews. In 1978, blacks reported fewer acute conditions than whites (191.0 conditions per 100 persons, compared with 223.9 conditions reported by whites). However, blacks experienced more disability as a result of acute conditions than did whites.

The second type of data employed for comparative purposes is medical care utilization data. For the vast majority of acute conditions, physician visit rates were lower for nonwhites than for whites in 1979. Some notable exceptions, however, were found. Nonwhites had twice the physician visit rate as whites for influenza in 1973. Nonwhite females had twice the visit rate for pelvic inflammatory disease (PID) as white females in 1979. The visit rate for acute upper respiratory infections (URI's) was 14.7 percent higher among nonwhites than among whites in 1979. Hospitalization rates were slightly higher for nonwhites than for whites for infective and parasitic conditions, acute upper respiratory conditions, pneumonia, and diseases of the skin and subcutaneous tissue.

The third type of data, mortality rates, was analyzed for the three most frequent categories of acute conditions causing death: cirrhosis of the liver, influenza, and pneumonia. The nonwhite-to-white ratio of age-adjusted death rates from influenza and pneumonia was 1.61 in 1980, which is a considerable drop from the 1950 ratio of 2.34.

Following a period of increase in mortality rates from cirrhosis of the liver, a decrease was observed in 1980. A series of possible explanations for this drop is given, including the possibility that more intensive and extensive health care services have been provided to alcoholics as a result of changes in insurance coverage for these services. With regard to racial differences in mortality from cirrhosis, the nonwhite-to-white ratio inverted from 0.86 in 1950 to 1.82 in 1980.

A. Introduction

Advances in American medicine and public health in the first half of the 20th century resulted in substantial reductions in morbidity and mortality from many acute disease conditions. Although chronic disease conditions, especially heart disease, cancer, and stroke, are leading causes of death and morbidity in the United States today, certain acute disease conditions continue to be major health problems. Pneumonia and influenza, for example, are among the leading causes of death, and upper respiratory infections are responsible for a considerable amount of morbidity.

to that of the total population at one point in time and over time. Acute disease conditions that are discussed in other chapters will not be discussed here. Acute conditions excluded from this chapter are those resulting from accidental injuries, dental conditions, health problems surrounding pregnancy and childbirth, and sexually transmitted diseases.

Three basically different types of measures are employed in the following analyses in order to compare the impact of acute disease conditions on the disadvantaged versus the general population. First, Section B of this chapter presents the incidence of acute disease conditions, as measured by responses of individuals in the course of health interviews. Second, Section C discusses selected medical care utilization measures. In Section D, the third type of measure, mortality data for selected acute diseases, is employed to compare the relative impact of acute disease conditions on certain segments of the population.

Additional caveats on the interpretation of the data presented are contained in Chapter I of this book.

B. Self-Reported Incidence of Acute Conditions

The National Health Interview Survey (NHIS) methodology defines acute conditions as those illnesses and injuries of less than three months', duration for which medical attention was sought, or which resulted in restricted activity (1, 2, 3). Conditions which meet the above criteria but which are generally considered chronic are excluded.

Those chronic conditions are listed in each NCHS Publication on acute conditions, as are the International Classification of Disease (ICD) codes for acute conditions (1, 2). While these criteria for categorizing morbidity conditions are not totally satisfactory, and we ourselves question the inclusion of some conditions in this chapter, there are reasons, no matter how tenuous, for following conventions somewhat established in the literature.

The medical attention and restricted activity criteria (in the NHIS acute conditions definition noted above) are used in part to eliminate very minor acute conditions which have little or no impact on the respondent. The effect of these criteria, however, may be to introduce a socioeconomic bias in the data. Persons who lack the income to pay for care and/or persons who are not aware that given symptoms require medical care may be less likely to obtain care for the same type of illness than would a less disadvantaged person. To remind the reader of this potential bias, data from this survey source will be referred to as "reported" incidence. In spite of this potential bias, an attempt will be made to determine from available data the position of the disadvantaged vis-à-vis total incidence of acute disease.

An estimated 478.0 million acute illnesses and injuries occurred among the civilian noninstitutionalized population of the United States during 1981 (3, p. 2). Although injuries resulting from accidents are excluded from this

chapter since they are discussed elsewhere in this book, NCHS estimates of acute condition incidence include injuries. Expressed as a population-based rate, an estimated 212.4 acute conditions (illnesses and injuries) per 100 persons were reported in 1981 (see Table 1). This rate is not significantly different from the 1979 rate of 215.3 acute conditions per 100 persons (3, p. 2). Based on data from Table 1, acute conditions included in the 1981 incidence rate are distributed among the major acute disease categories in the following manner:

Disease Group	Percent
Infective and parasitic	11.1
Respiratory conditions	52.7
Digestive system conditions	4.6
Injuries	15.6
All other acute conditions	16.0
Total	100.00

As shown above and in Table 1, respiratory conditions comprise the bulk of acute disease conditions (52.7 percent). One of the groups excluded from this chapter, injuries, comprises 15.6 percent of all acute conditions.

For both sexes, the incidence of acute conditions is highest among persons under 6 years of age and decreases substantially with age (see Table 1). In 1981, persons 6 years of age and under experienced 380.0 acute conditions per 100 persons, compared with only 120.6 conditions per 100 persons age 45 and over. The reported incidence of acute disease condition is 9.7 percent higher among females than males. Females reported 221.9 acute conditions per 100 persons while males reported 202.2 acute condi-

tions per 100 persons in 1981.

While acute disease incidence data are routinely published by NCHS in the Vital and Health Statistics series, racial breakdowns are not published. This prevents us from presenting recent data on acute conditions by demographic variables and from analyzing trends on such data. Data for 1978 with racial breakdowns were located from an unpublished NCHS source (4), however, and are presented in Table 2.

In 1978, the reported age-adjusted incidence rate of acute disease was 14.7 percent higher among whites (223.9 acute disease conditions per 100 persons per year) than among blacks (191.0 acute disease conditions per 100 persons per year).

While total reported acute disease incidence is lower among blacks than among whites, the converse is true with regard to one group of acute disease conditions listed in Table 2, namely digestive disease conditions. The incidence rate of digestive disease conditions for blacks was 13.3 conditions per 100 persons, compared with 9.4 among whites, a rate 41.5 percent higher.

Among the specific acute disease conditions listed in Table 2, influenza is the disease for which both the absolute and the relative difference between whites and blacks appears to be the greatest. Whites have a

reported (age-adjusted) influenza incidence rate 79.8 percent higher than that of blacks (52.5 conditions per 100 persons among whites compared with only 29.2 conditions per 100 persons among blacks).

Age-adjusted rates were used in the preceding paragraphs to compare the incidence of acute disease conditions of blacks with whites. Unadjusted rates are also presented in Table 2. While the racial differences are smaller using unadjusted rates (221.7 versus 199.6) than they are using age-adjusted rates (223.9 versus 191.0), blacks still have lower incidence rates of acute disease conditions when rates are not adjusted for age. Given the younger age distribution of blacks compared with whites (see Chapter II), and the higher incidence of acute conditions at younger ages (see Table 1), the lower incidence of all acute conditions combined among blacks is unexpected on the basis of age characteristics. This racial differential may be partially explained, however, by the restricted-activity and treatment-seeking criteria of acute conditions used in the National Health Interview Survey.

A comparison of some of the consequences of acute diseases among the racial segments of the population lends support to the possibility that blacks are more likely to report proportionately more severe acute conditions. The restricted-activity, bed-disability, and work-loss days information found in Table 2 may be regarded as some indication of the severity of a reported acute condition. The values for each of these measures are higher

for blacks than for whites. Thus, blacks report a lower frequency of acute conditions but higher disability levels associated with such conditions. Two alternative explanations suggest themselves for this type of outcome. One is that the data were intentionally biased or exaggerated by respondents for whatever reason: the second is that because of a generally reduced health status, the fewer episodes of acute conditions that blacks experienced resulted in more protracted disabilities.

The age-adjusted rate of work-loss days reported by blacks was 31.0 percent higher than that reported by whites (480.6 work-loss days per 100 persons per year among blacks compared with 366.8 work-loss days among whites). The age-adjusted rate of bed-disability days reported by blacks was 27.2 percent higher than that reported by whites (551.3 bed-disability days per 100 persons per year reported by blacks compared with 433.3 bed-disability days per 100 persons per year reported by whites). Adjusted for age, restricted-activity days were 3.8 percent higher for blacks (1027.1 days), than whites (989.7 days).

C. Medical Care Utilization and Health Status

In this section, selected medical care utilization measures are compared among segments of the population in order to ascertain whether acute disease incidence has a heavier impact on the disadvantaged. The basic assumption is that the frequency with which individuals seek medical care for a health problem is an indication of the level of illness among those individuals. Because utilization of health

services for a given symptom varies from individual to individual and group to group, utilization cannot be perfectly equated with health status. Utilization of health services is influenced by many individual characteristics, including the ability to pay for those services. If utilization of health services were synonymous with need for health services, then any observed indifference in utilization could confidently be interpreted as a difference in the incidence of a disease.

Aday and Andersen (5) have extensively addressed the relationship between health service utilization and health status. They have created a measure which relates utilization of health services to the need for health services, and have observed that measure among various groups. Called the use-disability ratio, it is the ratio of two measures, a utilization measure divided by an illness or health-care-needs measure. Although not a perfect index, the use-disability ratio is an attempt to assess differential health service utilization among persons with similar health care needs. A higher ratio means greater utilization of health services relative to health needs. As expected, the use-disability ratio was found to be higher for whites than racial minorities in several applications.

Any observed differences in medical care utilization may be interpreted in at least two ways. For example, if group A visits a physician more frequently than group B for acute disease Z, this occurrence may be interpreted as follows:

1. The incidence of acute disease Z is higher in group A than in group B. The

observed physician utilization differential approximates the incidence differential.

2. The incidence of acute disease Z is not higher in group A than in group B. The observed physician utilization differential approximates an unmet health needs differential.

In this section, utilization measures will be interpreted for the most part as a proxy measure of incidence and therefore as health status measures. When there is reason for doubt, utilization measures will be interpreted as possible areas of unmet health needs.

1. Physician Visits

Data relating to physician visits discussed in this section are of two types: NHIS data obtained from the consumer of health care (or a surrogate), and National Ambulatory Medical Care Survey (NAMCS) data obtained from physician providers of health care.

According to NHIS data, in 1971, 81.4 percent (6, p.1) and in 1980, 84.4 percent (7, p. 26) of all visits to a physician were for diagnosis and treatment of a condition. The distribution of reported visits for acute conditions, chronic conditions, and no condition were as follows (6, 8, 7):

	Acute %	Chronic %	No Condition Reported %
1971	46.4	50.0	3.6
1975	44.0	50.6	5.4
1980	44.2	51.2	4.6

In Table 3, the proportions of office-based physician visits by race are presented for 1973, the inception year of NAMCS, and again for 1979 for four selected conditions. As a proportion of visits for all conditions combined (both chronic and acute), visits for the selected acute conditions shown in Table 3 are similar for nonwhites and

whites with the exception of influenza. When rates per population were calculated and the ratio of the rates of nonwhites to whites was calculated, some differences were seen (see Table 3).

Nonwhites had over twice the visit rate of whites for influenza in 1973. Data pertaining to influenza were not published by race for 1979. For all other conditions, however, visit rates for nonwhites are lower than those for whites, and greater disparities are observed in 1979 than 1973. For example, visit rates among nonwhites for infective and parasitic diseases were only 9 percent lower than those of whites for that condition in 1973, but 34 percent lower in 1979. Visit rates for respiratory conditions among nonwhites were 10 percent lower than among whites in 1973, but 30 percent lower in 1979.

Changes in the ICD codes between 1973 and 1979 may be responsible for some of the observed differences over time, but it is likely that coding changes did not affect one racial group any more than any other, and that the differences noted are real.

Table 4 presents 1979 annual visit rates per 1,000 persons by principal diagnoses (chronic and acute) and by race. For the majority of the diagnoses listed, visit rates are higher for whites than for nonwhites. Among the 53 diagnoses listed in Table 4, visit rates are higher for non-

whites than for whites for only seven diagnoses, and only three of these were acute conditions:

1. sprains and strains of joints and adjacent muscles;
2. inflammatory disease of female pelvic organs; and
3. acute upper respiratory infections (URI's) of multiple or unspecified sites.

The annual visit rate for sprains and strains of joints and adjacent muscles was 63 visits per 1,000 population among whites and 67 visits per 1,000 population among nonwhites. Because injuries from accidents are treated more fully in Chapter VI of this book, this discussion will focus on conditions 2 and 3 above.

Nonwhite females had twice the physician visit rate as white females for pelvic inflammatory disease (PID) in 1979 (96 visits per 1,000 persons among nonwhites compared with 48 visits per 1,000 persons among whites). Since office-based physician visits do not include outpatient department and emergency room visits, the racial differential may be even greater than that shown by these rates.

"Pelvic inflammatory disease is an important public health problem because it is a common condition associated with significant acute and chronic morbidity and long-term complications." (9, p. 124) The long-term complications of PID include recurrent episodes due to low-grade infection, pelvic adhesions, or damage to Fallopian tubes. In addition, about 25 percent of women with one or more episodes of PID experience aftereffects of the inflammations, such as chronic pelvic pain, infertility, and ectopic pregnancy (9, p. 123).

"Epidemiologic and clinical evidence strongly suggests that sexually transmitted diseases are a major cause of PID." (9, p. 120) PID is also strongly associated with contraceptive intrauterine device use (particularly the Dalkon shield) and with abortion (9, p. 122). An estimated 5,000 cases of PID per year in the United States during the late 1970's have been attributed to abortion (9, p. 122). Since those events or factors associated with PID are increasing in the United States (see Chapter III), PID incidence will probably increase in the near future.

Acute upper respiratory infections (URI's) are another disease group listed in Table 4 for which nonwhites had higher physician visit rates than whites. They were the fourth leading cause of visits to physicians in 1979, making up 2.7 percent of all visits (10, p. 41). They were exceeded in frequency only by visits for essential hypertension (4.2 percent), normal pregnancy (4.0 percent), and general medical examination (3.0 percent). In 1973, URI's were the fifth leading cause of visits, making up 3.3 percent of all visits. They were exceeded in frequency by medical and special examination (6.1 percent), medical and surgical after-care (5.0 percent), prenatal care (3.9 percent), and essential benign hypertension (3.5 percent) (11, p. 26).

The visit rate for acute URI's was 14.7 percent higher among nonwhites (78 visits per 1,000 persons) than among whites (68 visits per 1,000 persons) in 1979 (see Table 4). Table 5 contains additional information from NAMCS regarding URI visits in 1980. If drug mention rates

may be considered an indicator of severity, acute URI's seen by office-based physicians are not very different among blacks and whites. (12, pp. 2,3) ("Drug mention" refers to the ordering or providing of a drug at the time of the visit.) The drug intensity rate (drug mentions divided by drug visits) was also the same for whites and blacks. In 1980, 88.8 percent of URI visits were made by whites, and 11.2 percent by blacks (nonwhite races other than black are excluded from these calculations), roughly matching their proportions in the overall population (see Table 5).

Both Tables 4 and 5 contain NAMCS data regarding URI's. Several differences between the two tables, however, may explain the observation of a higher visit rate among nonwhites than whites in Table 4, while similar visit rates obtain for blacks and whites in Table 5. The different data years and different racial groupings may have contributed minimally, but the more likely explanation involves URI grouping differences between those two tables. Only one ICD URI code is included in Table 4 (465), while three ICD URI codes are included in Table 5 (460, 461, and 465) (12, p. 33). The diseases which coincide with these three ICD codes are 460, acute nasopharyngitis (common cold); 461, acute sinusitis; and 465, acute upper respiratory infections of multiple or unspecified sites. Table 4, in which higher visit rates were observed among nonwhites, does not include the less severe diagnosis 460, the common cold, while Table 5 does.

Otitis media is *not* one of the conditions listed in Table 4 for which nonwhites have had higher physician visit

rates than whites (see Table 4). It was selected for discussion in this chapter, however, because it is an acute disease condition with a very high incidence among another disadvantaged segment of the population, American Indians and Alaska Natives (who form a small subgroup of the all nonwhite group).

Otitis media is an inflammation of the middle ear that may be either an acute or a chronic condition. In about 77 percent of the total visits for otitis media to physicians in 1980, the condition was described as acute according to NAMCS data (12, p. 33).

Otitis media was the eighth leading diagnosis in all visits to office-based physicians in 1979 (10, p. 41), and the 10th leading diagnosis for visits in 1973 (11, p. 26). It was also the basis of a larger proportion of visits for all diagnoses combined, 2.3 percent of all visits in 1979, and 1.6 percent in 1973.

Table 6 presents otitis media physician visits by age, race, and drug mentions. In 1980, 95.5 percent of all visits were made by whites, and only 4.5 percent by blacks, a disproportionately low rate for blacks (nonwhite races other than black are excluded from this calculation).

As previously mentioned, the incidence of otitis media is especially pronounced among another disadvantaged group of concern in this book, the American Indian (13, 14). Otitis media is a reportable condition among American Indians. Because it is not a reportable condition in the general population, however, trends over time in the total population and among other racial minorities

could not be compared with those among Indians in the past. Recent NAMCS data, however, provide racial breakdowns that can be used for some comparative purposes. The rate of physician office visits for otitis media in 1979 among whites was 71 per 1,000 population, which is considerably higher than that experienced by nonwhites, 36 per 1,000 population (see Table 4). The white otitis media visit rate of 71 per 1,000 population in 1979, on the other hand, was considerably lower than new cases reported by American Indians and Alaska Natives 2 years previously, 111 per 1,000 population in 1978 (see Table 7).

The rate of otitis media among American Indians and Alaskan Natives has been increasing steadily at least since the 1962 data presented in Table 7, including particularly higher rates during 1972 and 1973. There does appear to be a leveling off of rates in the last years tabled, however. Over the last 5 years tabled (1974-1978), there was a 1.3 percent increase in otitis media rates, whereas over the first 5 years tabled (1962-1966) the increase was 81.6 percent. The increases over time may represent increases in the incidence of the condition or more frequent reporting of the condition. If the latter is true, it may have resulted from an increase in use of medical care for this condition among this group.

Since otitis media is commonly a complication resulting from an upper respiratory condition (15), the higher rate of otitis media among American Indians may be due to the higher incidence of upper respiratory infections among this group (15, p. 46). It may also be

that the lower levels of health care for URI's are enhancing otitis media rates. Although this affords us a tentative hypothesis for the higher incidence of this condition among American Indians, it does not explain the lower incidence of otitis media among blacks.

The high incidence of untreated otitis media may be resulting in a high frequency of chronic ear disease among American Indians (15, 16). In addition, since it has been contended that about 50 percent of all cases of deafness can be traced to otitis media (17, p. 504), higher rates of deafness may be expected among segments of the population with a high incidence of otitis media. Since data concerning hearing problems may be confounded by industrial and urban noise environmental problems, we do not think we can at this time analyze the problem further.

2. Inpatient Hospitalization
Hospitalization patterns were analyzed to determine what differences, if any, existed in hospital utilization rates for acute conditions by race. Table 8, giving hospital utilization for selected acute conditions by race for 1968 and 1979, shows only slight differences between the racial groups.

When rates per 1,000 population were calculated, nonwhites were found to have higher hospitalization rates than whites for the same conditions. Those conditions are presented below, along with the ratio of nonwhite-to-white rates per 1,000 population in 1968 and in 1979.

	Nonwhite-to-White Ratio of Rates	
	1968	1979
Infective and parasitic	1.40	1.18
Acute upper respiratory	.79	1.09
Pneumonia	1.14	1.09
Diseases of the skin and subcutaneous tissue	1.14	1.14

Since race was not stated for 13 percent of the patients disharged in 1979 (18, p. 8), the racial differences may not be statistically significant but are presented to point the way for further investigation.

D. Mortality from Acute Conditions
For some years now, the combined categories of pneumonia and influenza, both acute disease conditions, have ranked as the fifth leading cause of death after heart disease, cancer, stroke, and accidents. Age-adjusted pneumonia and influenza death rates by race and sex for the United States from 1950 to 1980 are presented in Table 9.

Death rates from these joint causes have a tendency to be cyclical, probably due to the cyclical nature of influenza. The rate for the total population in 1950, for example, was 26.2, per 100,000 population. In 1953, the rate was 26.3; in 1957, it was 27.9; in 1960, it was 28.0; in 1963, it was 27.7; and in 1968, it was 26.8. These rates make it appear that the mortality rate from these causes was constant over this 18-year period, even though there was a definite and constant downward trend in the years *in between* those years listed above. The apparent rise in rates in 1960, for example, is an artifact of this cyclical characteristic. Although the rate in 1960 was 28.0, the

rate had previously decreased to 23.4 in 1959, and then continued the decline in 1961, when it dropped to 22.1.

In the 30-year period covered by Table 9, the death rate from this cause decreased overall by almost 51 percent, and the rate declined more for females and for nonwhites. In 1950, the nonwhite-to-white ratio was 2.34 for males, and by 1980 that ratio had dropped to 1.61; for females, the 1950 nonwhite-to-white ratio was 2.68, and it dropped to 1.27 by 1980. The decrease in death rates from influenza and pneumonia was more precipitous in the last of these 3 decades (see the last row in Table 9), particularly for males. At these rates of convergence, the female differential could disappear by the end of this decade, and the male differential could disappear by the end of the century.

Influenza and pneumonia are acute disease conditions, but the contributing factors to deaths from pneumonia are sometimes chronic in nature, including pre-existing lung disease and general debilitation. Debilitated persons may also be more susceptible to influenza, and the disease may also be more severe in people with chronic illness. It may be that the change in death rates noted above is due to a lessening of chronic conditions among nonwhites. The decline in death rates among nonwhites may also be due to an increase in

utilization of the health care system, and in fact a very slight increase in office visits did occur among nonwhites (see Table 3).

Cirrhosis of the liver was the sixth leading cause of death in the United States in 1979, and provisional data indicate that it was tied for fifth place in 1980.

Although a certain amount of confusion surrounds classification of this condition into the acute or chronic rubics, it is included in this chapter on the basis of the Health Interview Survey policy of listing it among acute conditions. In addition, although the condition develops over a long period of time, it goes through acute phases, which is probably when most of the deaths attributed to it occur. A third reason for including it in this chapter is the reversible characteristic of the condition, which is not typical of most chronic conditions (although there is a nonreversible stage) (19).

Several noteworthy features of the mortality trend from cirrhosis of the liver may be observed in Table 10. First, the death rate in the total population from this cause has increased steadily from 1950 to 1973, an average of approximately 60 percent of whites and 242 percent of nonwhites. The increases were greater for males than females (the male-to-female ratio was 1.18 for whites and 1.28 for nonwhites). The nonwhite-to-white ratio inverted from 0.86 to 1.82 during the 30-year period.

In the 7 years following 1973, there was a steady decrease of approximately 20 percent in cirrhotic death rates. The trend after 1980 is not easy to discern, since it appears that the 1980 and

1979 rates are roughly identical. Intercensal population overestimates may have caused a slight bloating of the mortality rates, and these misestimates would have increased through 1979. If that were the case, that artifact would have obscured the fact that the 1980 data reflect a continuation of the downward trend.

Whether or not there has been a continuation of the trend, the possible cause of the downward trend following 1973 is still of some concern. John Baudhuin, who is the director of an alcohol and drug rehabilitation center, and who has been in the field for 12 years at various noted rehabilitation centers, cites five possible reasons for this decrease in death rates:
(a) It was in the early 1970's that insurance companies started to cover inpatient services for alcoholism beyond detoxification. Inpatient stays got longer and more intensive, and extensive health care services were extended to alcoholic inpatients.
(b) Some of the very strict programs directed at drunk drivers were initiated at that time. These programs usually included a rehabilitation requirement for retaining a driver's license and/or avoiding a jail sentence.
(c) Physicians started to receive better training in medical schools on how to treat alcoholics. Many physicians adopted a policy of being unwilling to treat alcoholics for any of their medical problems unless they entered rehabilitation, and learned where to refer their patients for rehabilitation.
(d) Participation in Alcoholics Anonymous became more socially acceptable. Many

notables, including political figures (e.g., the President's wife, Betty Ford), sports figures, and movie stars publicized the fact that they were alcoholics and made televised public service announcements asking alcoholics to seek help.
(e) Generally, the health community adopted a new therapeutic model. The model was holistic and required a regimen that included psychotherapy as well as medical treatments (20).

We cannot, of course, conclude that these were the only factors operating throughout the 1970's that caused the decrement, but there is at least some evidence that they did have an impact. Of particular interest is the suggestion that changes in insurance coverage affected a death rate. Perhaps such coverages need to be reviewed annually in search of other ways that they could favorably affect the health of the Nation.

There has been some indication that the rise in alcohol use by adolescents has stopped or slowed, and there have been some nationally based grass roots campaigns initiated against drunken drivers, both of which could continue to affect these death rates in the future.

American Indians also experience excessive death rates from cirrhosis of the liver, as well as from pneumonia and influenza. In Table 11, age-adjusted 1971 and 1979 death rates from leading causes are compared for Indians and Alaskan Natives. Those rates are also compared with those for other segments of the U.S. population.

Over the 8-year period from 1971 to 1979, the

American (American Indian and Alaskan Natives in 24 reservation States as reported by the Indian Health Service) death rate from all causes decreased by 17.7 percent. During the same period, the total U.S. population death rate from all causes decreased by 19.4 percent, causing the differential between these two groups to rise from 28 percent to 31 percent. During the same period, American Indian death rates from cirrhosis of the liver decreased 18.9 percent while the whole population experienced a drop of only 14.1 percent, lowering the differential associated with that cause of death from 4.70 to 4.44. American Indians also experienced a tremendous decrease of 44.5 percent in their death rate from influenza and pneumonia, but the total U.S. population experienced an even greater decrease of 53.7 percent, raising the differential between the two groups from 1.69 to 2.03.

Although American Indian deaths from cirrhosis of the liver are decreasing at a fast rate, and the rate of decrease is faster than it is for the general population, the Amerind death rate is so much higher than the general population rate that it will take a very long time for the differential to disappear without a programmatic effort to accelerate the rate of decrease.

Although not all persons with cirrhosis are alcoholics, alcohol consumption is an established contributory factor in the development of this disease. The results of surveys show that proportionately more people at lower socioeconomic levels, and that moderate and heavier drinking increases as social class rises (19, p. 17).

The higher incidence of cirrhosis among disadvantaged groups does not seem to be explained by higher rates of heavy drinking. It seems likely that, among disadvantaged persons who are heavy drinkers, nutritional deficiencies may put them at a greater risk of developing cirrhosis than the less disadvantaged who are heavy drinkers.

Although bronchitis is not one of the causes of death being discussed here, it is one of the major causes of American Indian deaths (though at a lesser rate for this group than for the rest of the U.S. population), and is on the rise for all groups listed in table 11. During the 8-year period under discussion, the death rate rose more drastically for American Indians (31.8 percent) than it did for the population as a whole (24.2 percent), causing the differential to rise from 0.55 to 0.58.

Table 1

Incidence of acute conditions and number of acute conditions per 100 persons per year, by age, sex, and condition group: United States, 1981.

(Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in appendix I. Definitions of terms are given in appendix II)

Sex and Condition Group	All Ages	Under 6 Years	6-16 Years	17-44 Years	45 Years & Over	All Ages	Under 6 Years	6-16 Years	17-44 Years	45 Years & Over
Both Sexes	Incidence of Acute Conditions in Thousands					Number of Acute Conditions per 100 Persons per year				
All Acute Conditions	478,047	76,434	106,979	211,373	83,262	212.4	380.0	275.9	217.6	120.6
Infective and Parasitic Diseases	53,185	12,015	14,744	20,957	5,469	23.6	59.7	38.0	21.6	7.9
Respiratory Conditions	251,802	40,078	57,845	108,051	45,828	111.9	199.3	149.2	111.2	66.4
Upper Respiratory Conditions	125,399	25,445	30,948	50,025	18,981	55.7	126.5	79.8	51.5	27.5
Influenza	111,847	11,464	24,492	52,566	23,326	49.7	57.0	63.2	54.1	33.8
Other Respiratory Conditions	14,555	3,168	2,406	5,460	3,521	6.5	15.8	6.2	5.6	5.1
Digestive System Conditions	21,771	2,039	5,945	10,262	3,526	9.7	10.1	15.3	10.6	5.1
Injuries	74,660	7,379	15,629	36,898	14,574	33.2	36.7	40.3	38.0	21.4
All Other Acute Conditions	76,629	14,992	12,817	35,205	13,685	34.1	14.2	33.1	36.2	14.8
Male										
All Acute Conditions	219,525	40,599	55,033	90,411	33,482	202.2	396.9	277.4	190.8	107.6
Infective and Parasitic Diseases	23,287	5,758	7,453	8,277	1,798	21.4	56.3	37.6	17.5	5.8
Respiratory Conditions	115,710	20,955	29,239	46,546	18,968	106.6	204.9	147.4	98.2	61.0
Upper Respiratory Conditions	57,985	13,803	14,805	21,825	7,552	53.4	135.0	74.6	46.1	24.3
Influenza	51,923	5,795	13,213	22,766	10,149	47.8	56.7	66.6	48.0	32.6
Other Respiratory Conditions	5,802	1,357	1,221	1,957	1,267	5.3	13.3	6.2	4.1	4.1
Digestive System Conditions	10,691	1,502	3,202	4,574	1,413	9.8	14.7	16.1	9.7	4.5
Injuries	42,266	4,190	9,392	22,337	6,347	38.9	41.0	47.3	47.1	20.4
All Other Acute Conditions	27,571	8,193	5,747	8,675	4,955	25.4	80.1	29.0	18.3	15.9
Female										
All Acute Conditions	258,522	35,835	51,946	120,962	49,779	221.9	362.5	274.5	243.1	131.3
Infective and Parasitic Diseases	29,899	6,257	7,291	12,681	3,671	25.7	63.3	38.5	25.5	9.7
Respiratory Conditions	136,092	19,122	28,606	61,503	26,661	116.8	193.4	151.1	123.6	70.9
Upper Respiratory Conditions	67,414	11,642	16,143	28,200	11,430	57.9	117.8	85.3	56.7	30.1
Influenza	59,924	5,669	11,276	29,800	13,177	51.4	57.3	59.6	59.9	34.8
Other Respiratory Conditions	8,754	1,811	1,185	3,503	2,254	7.5	18.3	6.3	7.0	5.9
Digestive System Conditions	11,080	536	2,743	5,688	2,112	9.5	5.4	14.5	11.4	5.6
Injuries	32,394	3,190	6,237	14,561	8,406	27.8	32.3	33.0	29.3	22.2
All Other Acute Conditions	49,059	6,729	7,070	26,530	8,729	42.1	68.1	37.4	53.3	23.0

Note: Excluded from these statistics are all conditions involving neither restricted activity nor medical attention.

Source: National Center for Health Statistics, B. Bloom: Current estimates from the National Health Interview Survey, United States, 1981. *Vital and Health Statistics.* Series 10—No. 141. DHHS Pub. No. (PHS) 83-1569. Public Health Service. Washington, DC. U.S. Government Printing Office. October 1982. Table 2, p. 12.

Table 2

Incidence of acute conditions, associated disability days, and persons injured, by race: United States. 1978.

Item	All races[1]	White	Black	White	Black
		Unadjusted rate		Age-adjusted rate[2]	
Acute Conditions	Number of acute conditions per 100 persons per year				
All acute conditions	218.2	221.7	199.6	223.9	191.0
Infective and parasitic diseases.......................	24.1	25.2	18.0	25.6	16.5
Respiratory conditions	116.5	119.4	98.8	120.8	92.8
Upper respiratory conditions	60.8	60.5	63.9	61.4	59.0
Influenza	49.0	52.1	29.7	52.5	29.2
Other respiratory conditions	6.6	6.8	5.2	6.9	4.5
Digestive system conditions	9.9	9.4	13.3	9.4	13.3
Injuries	34.4	35.2	30.8	35.4	31.4
All other acute conditions	33.3	33.2	33.5	33.5	33.0
Days of disability associated with acute conditions	Days of disability per 100 persons per year				
Restricted-activity days	989.4	990.2	1,005.3	989.7	1,027.1
Bed-disability days..................................	444.4	432.8	543.2	433.3	551.3
Work-loss days (ages 17 years and over)[3]	376.6	366.7	482.5	366.8	480.6
School-loss days (ages 6-16 years)....................	480.7	484.3	478.4	NA	NA[4]
Class of accident	Number of persons injured per 100 persons per year				
All classes of accident	31.6	32.6	27.2	32.7	26.9
Moving motor vehicle	2.1	2.0	3.2	2.0	3.5
While at work.......................................	4.9	5.4	2.0	5.4	2.2
Home...	11.9	12.3	9.4	12.4	9.2
Other	13.9	14.3	12.9	14.4	12.5

[1]Includes all other races.
[2]Adjusted by the direct method to the age distribution of the civilian noninstitutionalized population or that of the currently employed population
[3]For currently employed population.
[4]Not applicable.
Source: National Center for Health Statistics, Division of Health Interview Statistics, 1978 Health Interview Survey, unpublished data.
Taken from National Center for Health Statistics, *Health Data on Blacks in America*, Rice, D.P., Paper presented at Atlanta University Center, November 19, 1979. Table 2.

Table 3

Percent[1] of visits to office-based physicians and ratios for selected acute conditions, by race, 1973 and 1979.

Condition	1973 White	1973 All Other	1979 White	1979 All Other	Ratios[2] 1973	Ratios[2] 1979
Infective and Parasitic	3.9	4.2	3.5	3.5	.91	.66
Diseases of the Respiratory System*	15.0	15.9	13.1	14.0	.90	.70
Influenza............................	.7	1.8	n.a.[3]	n.a.	2.16	n.a.
Skin and Subcutaneous Tissue	5.3	5.1	5.3	4.4	.81	.55

[1]Entries are percents of all visits in the given year for each racial group Columns would total to 100 percent if all conditions were listed in the table.

[2]The ratio (nonwhite to white) of number of visits per 1,000 population.

[3]n.a.—not available.

*This category includes some chronic respiratory diseases

Table 4

Annual visit rate per 1,000 persons by age, sex, and race of patient, and principal diagnoses: United States, 1979.

Principal diagnosis and ICD-9-CM code[1]	All patients	Age					Sex		Race	
		Under 15 years	15-24 years	25-44 years	45-64 years	65 years and over	Female	Male	White	Black and all other
		Rate per 1,000 population[2]								
1. Streptococcal sore throat and scarlet fever 034	10	29	11	*4	*3	—	11	10	12	2
2. Viral warts 078.1	15	15	30	15	*7	*4	14	16	17	1
3. Mycoses 110-118	18	11	22	26	20	*5	23	13	19	16
4. Malignant neoplasm of skin 172-173	9	—	*2	*5	13	45	8	10	11	—
5. Malignant neoplasm of female breast[3] 174	15	—	—	*9	43	32	15	...	17	*3
6. Diabetes mellitus 250	42	*3	*2	15	96	159	42	41	41	48
7. Obesity 278.0	39	*6	26	68	63	*13	63	14	41	24
8. Neurotic and personality disorders 300-301	64	10	43	125	73	44	79	48	68	35
9. Glaucoma................365	14	—	—	*2	26	78	16	13	15	*7
10. Cataract 366	16	*1	—	*2	15	111	21	11	18	*4
11. Disorders of refraction and accommodation 367	40	25	36	39	58	44	47	32	43	20
12. Disorders of conjunctiva ...372	15	19	*9	14	18	17	16	14	16	12
13. Otitis media ...381.0-381.4 382	67	194	31	25	26	35	64	69	71	36
14. Essential hypertension 401	110	*3	*8	58	236	410	129	90	109	118
15. Hypertensive heart disease 402	9	—	—	*2	17	43	11	6	9	*8
16. Ischemic heart disease 410-414	43	—	—	8	78	225	35	51	47	16
17. Congestive heart failure ..428.0	6	—	—	—	*7	46	7	5	7	5
18. Cerebrovascular disease 430-438	8	*1	—	*1	10	55	8	9	8	8
19. Acute pharyngitis 462	38	78	38	31	13	17	43	33	41	21
20. Acute tonsilitis 463	25	69	31	10	*3	*2	28	22	25	24
21. Acute URI's[4] of multiple or unspecified sites 465	70	135	46	49	47	64	79	60	68	78
22. Chronic sinusitis 473	15	11	*8	24	14	*14	18	12	15	12
23. Allergic rhinitis (hay fever) 477	46	51	53	53	41	*12	48	44	50	17
24. Bronchitis 466.0, 490, 491	42	45	24	38	52	61	42	42	43	39
25. Asthma................493	32	58	18	25	27	26	34	29	34	16
26. Chronic airway obstruction, NEC[5] 496	9	—	—	*2	16	51	6	13	10	7
27. Diseases of the esophagus, stomach, and duodenum 530-537	29	*6	22	29	48	58	32	26	31	17
28. Hernia of abdominal cavity 550-553	17	10	*5	11	29	45	12	21	17	13

Principal diagnosis and ICD-9-CM code[1]	All patients	Age					Sex		Race	
		Under 15 years	15-24 years	25-44 years	45-64 years	65 years and over	Female	Male	White	Black and all other
29. Noninfectious enteritis and colitis 555-558	21	31	17	19	18	18	25	17	21	18
30. Cystitis[3] 595	27	*12	31	27	33	40	27	. . .	28	22
31. Diseases of male genital organs[6] 600-608	41	15	*13	36	74	111	. . .	41	41	37
32. Disorders of breast (excluding neoplasms)[3] 610-611	31	*4	*11	63	45	*12	31	. . .	34	10
33. Inflammatory disease of female pelvic organs[3] 614-616	55	*7	88	103	38	*11	55	. . .	48	96
34. Menopausal and post-menopausal disorders[3]...627	27	—	—	21	96	*17	27	. . .	30	12
35. Infections of skin and sub-cutaneous tissue 680-686	23	28	21	23	21	22	21	26	24	16
36. Contact dermatitis and other eczema 692	26	29	23	29	25	24	28	25	28	18
37. Acne 706.1	24	12	82	20	*1	*3	30	17	26	14
38. Osteoarthrosis, excluding the spine...............715	21	—	*1	*7	40	100	28	14	22	12
39. Arthropathy, unspecified ..716.9	19	—	*2	10	39	74	21	17	18	28
40. Dorsopathies 720-724	41	*3	15	54	75	73	43	39	43	28
41. Rheumatism, excluding the back 725-729	51	*7	27	66	89	80	57	45	52	46
42. Congenital anomalies ..740-759	12	30	*8	8	*6	*6	13	12	14	5
43. Fracture of upper limb .810-819	27	34	28	23	22	28	22	31	29	11
44. Sprains and strains of joints and adjacent muscles 840-848	64	11	79	97	76	43	64	63	63	67
45. Open wound of head, neck, and trunk 870-879	12	23	15	7	*8	*4	9	15	12	9
46. Open wound of upper limb 880-887	16	11	24	20	15	*11	10	23	18	6
47. Allergy, unspecified 995.3	24	35	25	23	17	*10	24	23	27	5
48. Need for prophylactic vac-cination and other pro-phylactic measures .VO3-VO7	18	37	*8	8	14	24	18	18	18	18
49. Routine infant or child health check V20.2	65	278	*4	—	—	—	60	71	69	46
50. Normal pregnancy[3] V22	202	*3	483	416	*3	—	202	. . .	211	148
51. Contraceptive management[3]..........V25	21	—	54	42	—	—	21	. . .	20	30
52. Followup examination (following surgery) V67.0	27	*5	21	36	41	31	32	21	29	14
53. General medical examination V70	77	69	105	87	67	44	79	75	82	49

[1]Based on the International Classification of Diseases, 9th Clinical Modification (ICD-9-CM)
[2]Rates are based on estimates of the civilian noninstitutional population of the United States, for July 1, 1979, furnished by the Bureau of the Census
[3]Based on the female population only
[4]Upper respiratory infections.
[5]NEC = Not elsewhere classified.
[6]Based on the male population only
*Figure does not meet standards of reliability or precision.
Source: National Center for Health Statistics, R. Gagnon, J. DeLozier, and T. McLemore. The National Ambulatory Medical Care Survey, United States, 1979 Summary. Vital and Health Statistics. Series 13, Number 66 DHHS Pub. No. (PHS) 82-1727. Public Health Service. Washington, DC. U.S. Government Printing Office, September 1982. Table 21, p. 45.

Table 5

Number of office visits for acute upper respiratory infections of multiple or unspecified sites (acute URI), number and percent of drug visits, number of drug mentions, drug mention rate, and drug intensity rate, by selected characteristics: United States, 1980.

Selected characteristic	Office visits			Drug mentions	Drug mention rate[2]	Drug intensity rate[3]
	All visits	Drug visits[1]				
Sex	Number in thousands	Number in thousands	Percent	Number in thousands	Rate per visit	
Both sexes	16,969[4]	15,977	94.2	32,311	1.90	2.02
Female	9,112	8,634	94.8	18,002	1.98	2.09
Male	7,857	7,343	93.5	14,309	1.82	1.95
Age						
Under 15 years..................	7,677	7,152	93.2	12,654	1.65	1.77
15-24 years.....................	2,295	2,113	92.1	4,264	1.86	2.02
25-44 years.....................	3,594	3,463	96.4	7,169	1.99	2.07
45-64 years.....................	2,058	1,941	94.3	5,222	2.54	2.69
65 years and over	1,345	1,309	97.3	3,001	2.23	2.29
Race						
White..........................	14,901	14,064	94.4	28,597	1.92	2.03
Black..........................	1,880	1,735	92.3	3,351	1.78	1.93
Problem status						
New problem	11,405	10,697	93.8	21,207	1.86	1.98
Old problem	5,564	5,280	94.9	11,104	2.00	2.10
Major reason for visit						
Acute problem	15,706	14,866	94.7	29,926	1.91	2.01
Chronic problem, routine	414	*366	*88.5	*694	*1.68	*1.90
Chronic problem, flare-up...........	594	554	93.3	1,431	2.41	2.58
Non-illness care..................	*255	*192	*75.2	259	*1.02	*1.35

[1]A visit in which one or more drugs were ordered or provided
[2]Drug mentions divided by number of visits
[3]Drug mentions divided by number of drug visits
[4]Includes races other than white and black not shown as separate categories
Source: National Center for Health Statistics, B. K. Cypress: Medication therapy in office visits for selected diagnoses The National Ambulatory Medical Care Survey, United States, 1980. *Vital and Health Statistics*, Series 13, No. 71 DHHS Pub No (PHS) 83-1732 Public Health Service. Washington, DC U S Government Printing Office January 1983, Table 33, p 38
*Figure does not meet standards of reliability or precision (more than 30 percent relative standard error)

Table 6

Number of office visits for suppurative and unspecified otitis media, number and percent of drug visits, number of drug mentions, drug mention rate, and drug intensity rate, by selected characteristics: United States, 1980.

Selected characteristic	Office visits			Drug mentions	Drug mention rate[2]	Drug intensity rate[3]
	All visits	Drug visits[1]				
Sex	Number in thousands	Number in thousands	Percent	Number in thousands	Rate per visit	
Both sexes	11,748[4]	10,067	85.7	18,168	1.55	1.80
Female	5,562	4,842	87.1	8,868	1.59	1 83
Male	6,185	5,225	84.5	9,299	1.50	1.78
Age						
Under 3 years	5,032	4,405	87.5	7,851	1.56	1.78
3-14 years	4,315	3,597	83.4	6,316	1.46	1.76
15 years and over	2,402	2,066	86.0	4,001	1.67	1.94
Race						
White	11,019	9,511	86.3	17,005	1.54	1.79
Black	518	397	76.7	877	1.69	2.21
Problem status						
New problem	5,797	5,430	93.7	10,218	1.76	1.88
Old problem	5,951	4,636	77.9	7,950	1.34	1.71
Major reason for visit						
Acute problem	9,031	8,126	90.0	15,144	1.68	1.86
Chronic problem, routine	951	556	58.4	813	0.85	1.46
Chronic problem, flare-up	1,214	1,064	87.7	1,731	1.43	1.63
Post surgery/post injury	*154	*19	*12.2	*19	*0.12	*1.00
Non-illness care	*398	*302	*75.8	461	*1.16	*1.53

[1]A visit in which one or more drugs were ordered or provided
[2]Drug mentions divided by number of visits.
[3]Drug mentions divided by number of drug visits.
[4]Includes races other than white and black not shown as separate categories
*Figure does not meet standards of reliability or precision (more than 30 percent relative standard error).
Source: National Center for Health Statistics, B. K. Cypress: Medication therapy in office visits for selected diagnoses: The National Ambulatory Medical Care Survey, United States, 1980. *Vital and Health Statistics,* Series 13, No. 71. DHHS Pub. No (PHS) 83-1732. Public Health Service. Washington, DC. U. S. Government Printing Office. January 1983, Table 29, p. 36

Table 7

Reported new cases of otitis media and incidence rates for American Indians and Alaska Natives, calender years 1962-78.

Calendar Year	American Indian and Alaskan Natives	
	Number of Cases	Rate per 100,000
1978	68,775	11,099.2
1977	61,546	10,451.7
1976	58,871	10,957.0
1975	56,569	10,784.1
1974	53,555	10,958.2
1973	58,036	12,103.6
1972	57,781	12,289.8
1971	49,478	10,742.4
1970	44,008	9,745.0
1969	39,351	8,892.3
1968	36,470	8,413.7
1967	30,211	7,118.8
1966	28,224	6,909.6
1965	22,614	5,688.2
1964	22,290	6,243.7
1963	18,397	5,211.7
1962	13,382	3,801.7

Source: Compiled by CHESS from 1) U. S. Department of Health, Education, and Welfare: *Trajectory of Indian Health Care*. Indian Health Service, Vital Events Branch. January 17, 1977. 2) U.S. Department of Health, Education and Welfare. Indian Health Service, DHEW Pub. No. (HSA) 79-12040.

Table 8

Number and percent[1] of patients discharged from short-stay hospitals, by category of first-listed diagnosis of selected acute conditions and by race: United States, 1968 and 1979.

Category of First-Listed Diagnosis and ICD Code	1968				1979			
	White		All Other		White		All Other	
	No.	%	No.	%	No.	%	No.	%
Infective and Parasitic 1968 (000-136) 1979 (000-139)	238	1.1	47	1.6	444	1.6	85	1.9
Respiratory (selected)								
Acute Upper Respiratory (460-465)	304	1.4	34	1.2	220	.8	39	.9
Pneumonia (480-465)	535	2.5	86	3.0	573	2.1	102	2.2
Acute Bronchitis and Bronchiolitis (466)	148	.7	13	.4	180	.7	27	.6
Digestive (selected)								
Appendicitis (540-543)	262	1.2	26	.9	220	.8	23	.5
Cholelithiasis (574)	397	1.8	21	.7	357	1.3	38	.8
Diseases of the genito-urinary system (580-629)	2,059	9.5	274	9.4	2,650	9.7	426	9.3
Diseases of the skin and subcutaneous tissue (680-709)	299	1.4	48	1.7	448	1.6	83	1.8
All Diagnoses (Acute and Chronic)	21,629		2,907		27,451		4,572	

[1]Percents do not add to 100 because only selected diseases are included in table. For example, 1.1 percent of all white discharges in 1968 had infective and parasitic diseases as first-listed diagnoses, 98.9 percent were for all other diagnoses, acute or chronic.

Source: Compiled and abstracted by CHESS from 1) National Center for Health Statistics: Inpatient Utilization of Short-stay Hospitals by Diagnosis, U.S 1968, *Vital and Health Statistics*, Series 13, No. 12, p. 36. 2) National Center for Health Statistics, B. J. Haupt: Utilization of Short-stay Hospitals: Annual Summary for the United States, 1979. *Vital and Health Statistics*. Series 13, No. 60, Table 14, pp. 37-38

Table 9

Age-adjusted death rates for influenza and pneumonia, by race and sex: United States, selected years from 1950 to 1980.

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1950[1]	26.2	30.6	22.0	22.9	27.1	18.9	56.9	63.4	50.6
1960	28.0	35.8	21.8	24.6	31.0	19.0	55.2	68.0	43.3
1970	22.1	28.8	16.7	19.8	26.0	15.0	38.1	50.1	27.9
1980	12.9	17.4	9.8	12.2	16.2	9.4	18.0	26.1	11.9
Decrease 1950-1980	50.8	43.1	55.5	46.7	40.2	50.3	68.4	58.8	76.5
% total* decrease occurring in 1970-1980	69.2	86.4	56.6	71.0	89.9	58.9	51.7	64.3	41.3

*There was a substantial decrease in death rates between 1970 and 1980. This now contains the percentage of that decrease that occurred during the last of these three decades (i.e. 1970-1980: 1950-1980).
[1]Based on enumerated population adjusted for age bias in the population of races other than white.
Source: Compiled by CHESS from 1) Department of Health, Education, and Welfare: "Mortality Trends for Leading Causes of Death, U.S. 1950-69." Rockville, MD. Series 20, No. 16. Table K, p. 30. 2) Department of Health, Education, and Welfare: *Monthly Vital Statistics Report*, Summary Report, Final Mortality Statistics 1970, Vol. 22, No. 8; 1980, Vol. 32, No. 4.

Table 10

Age-adjusted death rates for cirrhosis of the liver, by race and sex: United States, selected years from 1950-1980.

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1950[1]	8.5	11.4	5.8	8.6	11.6	5.8	7.4	9.0	5.9*
1960	10.5	14.5	6.9	10.3	14.4	6.6	11.9	14.9	9.1
1970	14.7	20.2	9.8	13.4	18.8	8.7	23.8	31.3	17.4
1980	12.2	17.1	7.9	11.0	15.7	7.0	20.0	28.1	13.5
% Increase 1950-1973	76.5	83.3	70.7	59.3	66.4	50.0	241.9	267.7	205.1
% Decrease 1973-1980	18.7	18.2	20.2	19.7	18.6	19.5	20.9	17.1	25.0
% Increase 1950-1980	43.5	50.0	36.2	27.9	35.3	20.7	170.3	212.2	128.8

[1]Based on enumerated population adjusted for age bias in the population of races other than white
Note: Asterisk indicates age-adjusted rates where more than half of the age-specific rates are based on fewer than 20 deaths.
Source: Compiled by CHESS from 1) Department of Health, Education, and Welfare: "Mortality Trends for Leading Causes of Death, U.S. 1950-69." Rockville, MD. Series 20, No. 16. Table K, p. 30. 2) Department of Health, Education, and Welfare: *Monthly Vital Statistics Report*, Summary Report, Final Mortality Statistics 1970, Vol. 22, No. 8. 3) Department of Health and Human Services: *Monthly Vital Statistics Report*, Advance Report of Final Mortality Statistics, 1980, Vol. 32, No. 4.

Table 11

Age-adjusted death rates (per 100,000 population) for American Indians and Alaska Natives in 24 reservation States, U.S. calendar years 1971 and 1979.

	Year	Indian Health Service	U.S.[1] Total	White	All Other	Ratio of IHS to U.S.
All Causes	1971	935.5	730.9	694.4	1,046.2	1.28
	1979	770.2	588.8	563.4	776.3	1.31
Major cardiovascular diseases	1971	251.1	352.0	341.4	457.9	0.71
	1979	219.1	259.3	252.6	313.6	0.84
Accidents	1971	183.0	55.3	52.6	75.5	3.31
	1979	140.7	43.7	42.9	50.5	3.22
Malignant Neoplasms	1971	84.4	129.7	126.8	158.6	.65
	1979	78.9	133.2	130.2	159.0	.59
Cirrhosis of Liver	1971	66.8	14.2	12.9	24.0	4.70
	1979	54.2	12.2	11.1	20.1	4.44
Influenza and Pneumonia	1971	41.6	24.6	22.3	41.9	1.69
	1979	23.1	11.4	10.7	16.1	2.03
Diabetes Mellitus	1971	31.7	14.5	13.2	27.7	2.19
	1979	22.8	10.0	9.0	18.5	2.28
Tuberculosis, all forms	1971	10.6	2.3	2.8	8.0	4.61
	1979	4.4	0.7	0.4	2.5	6.29
Bronchitis	1971	6.6	12.0	12.0	10.0	0.55
	1979	8.7	14.9	15.3	10.7	0.58

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Chapter V

Chronic Disease Conditions

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Overview

Racial differentials of health status indicators remain high with respect to leading chronic disease conditions. Major cardiovascular diseases not only accounted for 50 percent of all deaths in 1980 but also were responsible for more disability and economic loss than any other group of diseases. While the disadvantaged fare worse than the remainder of the population with regard to cardiovascular disease, racial differentials are decreasing. Nonwhites in comparison with whites experienced a slightly greater decrease in age-adjusted death rates from heart disease in the past 10 years. The same directional change was observed for cerebrovascular disease (stroke), for which nonwhites had an age-adjusted death rate higher than whites in 1980, but experienced a greater decrease in this death rate between 1970 and 1980, producing a smaller racial differential. Blacks continue to have a higher prevalence rate of elevated blood pressure, which increases their risk of heart attack and stroke, but a larger percentage of blacks are currently controlling this condition with medication than was true in the past.

Cancer mortality among whites increased only minimally during the past 10 years (1.4 percent), but the rate among nonwhites increased substantially (6.7 percent). With regard to this disease, the racial gap in health status is broadening. While nonwhites had lower death rates from cancer of

the respiratory system in comparison to whites, they have experienced a greater increase in death rates from this cause than have whites in the past 10 years. Nonwhite males had a higher death rate than did white males from cancer of the genital organs (mostly prostate cancer), but an only slightly greater increase in this death rate during the past 10 years. White females had higher death rates than nonwhite females from breast cancer in 1980 and in 1970. Nonwhite females had higher death rates from cancer of the genital organs than white females, both in 1980 and in 1970. Another racial/ethnic minority, Hispanics, experienced lower incidence rates for almost all sites of cancer in comparison with whites.

Nonwhites have had twice the age-adjusted death rate from diabetes as have whites, and the racial differential increased slightly from 1.95 in 1970 to 2.06 in 1980. Again, the racial gap in health status from this source is broadening.

Nonwhites have substantially higher incidence of and mortality from tuberculosis in comparison with whites, with Indian and Alaska Natives faring worse than all non-whites combined. With respect to both morbidity and mortality, however, the "Indian and Alaska Native/All Races" ratio decreased during 1969-1979, while the "Nonwhite/All Races" ratio remained relatively static for the same period.

With regard to limitation of activity due to all chronic disease conditions, the poor are over two and one-third times as likely to have activity

limitation as the nonpoor.

In summary, the differential health status of racial minorities with regard to major cardiovascular disease, cancer, diabetes, and tuberculosis is striking. While improvements in their relative standing was observed with regard to major cardiovascular disease and tuberculosis for Indian and Alaska Natives, such improvements were not noted for other nonwhite racial groups. The converse has been true with regard to cancer and diabetes.

A. Introduction

Chronic disease conditions are leading causes of both morbidity and mortality in the United States today. Not only have the three leading causes of death for the past several years been due to chronic diseases, but an estimated 14.4 percent of the population of the 1981 National Health Interview Survey reported a limitation of activity due to chronic conditions (1, p. 3).

Available morbidity and mortality data will be used in this chapter to describe the impact of chronic disease conditions on the disadvantaged compared with the population as a whole. Morbidity data were obtained from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program and from the following surveys of the National Center for Health Statistics (NCHS): (a) the National Health Interview Survey, (b) the National Health and Nutrition Examination Survey, (c) the National Hospital Discharge Survey, and (d) the National

Ambulatory Medical Care Survey. Mortality data were obtained from the vital statistics program of the National Center for Health Statistics and from SEER.

This chapter discusses the chronic diseases that are leading causes of death. The discussion of these diseases revolves around available mortality data and, when possible, morbidity data. The National Center for Health Statistics publishes prevalence rates for all chronic diseases combined, reported in this chapter in Section F. For the purposes of the National Health Interview Survey, from which chronic disease prevalence rates are derived, a condition is considered chronic if 1) the condition is described by the respondent as having been first noticed more than 3 months before the week of the interview; or 2) it is among those conditions listed by NCHS which are always considered chronic regardless of the date of onset (1, p. 49).

Additional caveats on the interpretation of the data presented are contained in Chapter I of this book.

B. Major Cardiovascular Diseases

The disease category "major cardiovascular disease" comprises all diseases of the heart and blood vessels. It includes 1) diseases of the heart; 2) hypertension; 3) cerebrovascular diseases (including stroke); 4) arteriosclerosis; and 5) other diseases of the arteries.

Cardiovascular diseases are *the* major diseases in the

United States today, having been the cause of almost half of all deaths that occurred in 1980 (2). "The arteriosclerotic diseases, particularly coronary heart disease and cerebrovascular disease (stroke), cause more deaths, disability, and economic loss in the United States than any other group of acute or chronic diseases." (3, p. 1)

Heart disease and stroke, when ranked with other diseases, are the first and third leading causes of death, while hypertension and atherosclerosis are not only responsible for deaths directly but increase the risk of both heart disease and stroke (see Table 1).

Cardiovascular disease became the leading cause of death in 1930. Since 1950, however, there has been a 34 percent decrease in the age-adjusted death rate from that cause, with 20 percent of the decline occurring during the 10 years from 1970 to 1980. While cardiovascular disease deaths still make up about 50 percent of all deaths, the decline has been so precipitous, particularly in the last 10 years, that the National Heart, Lung, and Blood Institute (NHLBI) organized a conference in 1978 to examine the causes of this phenomenon (4). The practicing cardiologists, biometricians, and epidemiologists attending the conference concluded that the observed decline in deaths was real and was not a function of any changes in the International Classification of Diseases (ICD) or of any artifact with regard to age adjustment. While no one treatment modality is considered responsible for the recent decline in cardiovascular

disease mortality, the decline is believed to be attributable to changes in the concept of coronary care, new drugs, and new surgical and diagnostic techniques. Also, reductions in cigarette smoking, hypertension, and cholesterol intake are thought to have played a part. "One can conclude that primary prevention and improved medical treatment each have clearly played a role, but how much credit each should receive is unclear." (4, p. 66)

The observed decline in death rates due to cardiovascular disease notwithstanding, morbidity and mortality resulting from cardiovascular disease is still substantial. In the following sections, each of the diseases making up the major cardiovascular disease group will be discussed in terms of the relative impact on the disadvantaged compared with the remainder of the population.

1. Diseases of the Heart

Heart disease prevalence rates were higher among whites (51.7 per 1,000 persons) than among nonwhites (41.5 per 1,000) in 1972, when heart disease prevalence rates from the Health Interview Survey were last published (5). While more recent household interview data with racial breakdowns are not available, office-based physician care, drug use, hospital utilization, and mortality data will be used to measure the impact of this disease on the disadvantaged.

In 1980, an estimated 10.4 million visits to office-based physicians were made for ischemic heart disease conditions. Of these, 96 percent (almost 10 million) consisted of visits by white patients and 4 percent (over 0.4 million) of visits by black pa-

tients (6). These percentages are incongruent with the population distribution by race: whites make up about 83 percent of the population, blacks represent 12 percent of the population, and other races about 5 percent.

One cannot conclude from these data, however, that prevalence rates for nonwhites are greater, since the data described office-based physician visits only. From our sources, it was not possible to determine whether or not proportionately fewer physician visits were also made by blacks to outpatient departments or emergency rooms for ischemic heart disease. "...Respiratory disease and circulatory disease dominate the world of office-based ambulatory care. Their dominance appears in the number of office visits in which they figure as a principal diagnosis; it also can be seen in most of the various measures of drug utilization associated with their treatment." (7, p. 5)

1980 was the first year in the 8-year history of the National Ambulatory Medical Care Survey (NAMCS) in which respondents reported the number and names of specific drugs used (7). In Table 2 the distribution of drugs mentioned by selected therapeutic categories is presented by race. "A drug mention is the physician's entry of pharmaceutical agent ordered or provided—by any route of administration—for the purpose of prevention, diagnosis, or treatment." (7, p. 4) Drug intensity rate is the ratio of drug mentions to drug visits. "In its drug intensity rate, the circulatory disease category clearly outranks all others." (7, p. 5) As a percentage of all drug mentions, cardiac drugs represent a higher percentage (3.98 percent) for whites

than for blacks (3.12 percent) or for Hispanics (1.78 percent) (see Table 2).

In addition to ambulatory care, heart conditions are responsible for a considerable amount of hospital utilization. Heart disease accounted for 3⅓ million discharges from short-stay hospitals in 1981 (see Table 3). As a proportion of total discharges, 9.3 percent of all discharges of white patients and 5.2 percent of all discharges of nonwhite patients were for heart conditions. In addition, the average length of hospital stay was longer for nonwhites (10.2 days) than it was for whites (9.2 days). Thus, hospitalization for heart conditions represented a lower proportion of all discharges among nonwhites than among whites in 1981. Although this finding by itself is consistent with the hypothesis of lower prevalence rates for this disease among nonwhites, this is not the case when other measures of heart disease are examined. When we take into account the longer lengths of stay and the higher death rates experienced by nonwhites, we obtain a profile that is more consistent with the hypothesis of higher prevalence rates for this disease among nonwhites. Perhaps the discrepancy arises from the limited degrees of freedom that derive from using percentages as a measure.

In Table 3, hospitalization data for all heart diseases combined are presented for 1975 and 1981. However, changes in the ICD between 1975 and 1981 make a comparison of specific heart conditions over time difficult. Therefore, a shorter period, 1979 to 1981, is employed in the calculations that follow.

The number of discharges for specific heart diseases (8, 9) was used to calculate percentage changes in hospitalization for whites and nonwhites between 1979 and 1981.

Disease	Whites	All Other Races
Acute myocardial infarction	22.0	18.5
Atherosclerotic heart disease	5.3	21.9
Other ischemic heart disease	28.2	44.7
Congestive heart failure	26.5	25.0

As shown above, the increase in hospitalization for atherosclerotic heart disease and other ischemic heart disease was substantially higher for nonwhites than for whites, while the increase in hospitalization for acute myocardial infarction and congestive heart failure was similar for nonwhites and for whites during this time period.

Having observed higher prevalence rates, physician visit rates, and hospital utilization rates among whites compared with nonwhites, we turn now to mortality rates (see Table 4) and observe that (a) the rates have dropped precipitously for both racial categories, (b) the rate of drop has been greater among females than males, (c) the drop for "all other races" was slightly greater than the drop for whites, and (d) the rate differential between the racial categories for females by 1980 was negligible and between males was only approximately 8 percent. As explained below, however, this analysis contains an artifact of racial groupings, and blacks have not fared as well as the other races within the "all other races" category.

Beginning in 1976, age-adjusted mortality rates have been presented in monthly vital statistics reports with more refined racial breakdowns. Race has been disaggregated by "white" and "all other races" with "all other races" being further disaggregated into "black" and "all other races." The age-adjusted mortality rate for diseases of the heart in 1980 per 100,000 population was 255.7 for blacks, 234.2 for nonwhites (including blacks), 197.6 for whites, and 202.0 for all races. The black-to-white ratio of heart disease mortality rates (1.29) was higher than the nonwhite-to-white ratio (1.19). The differential was even greater when comparing rates for females: the ratio of heart disease mortality rates of black females to white females is 1.49.

To summarize, whites have higher reported prevalence rates as well as higher office-based physician visit and hospital utilization rates for diseases of the heart, but lower mortality rates from this cause than nonwhites. On the other hand, while death rates have been on the decline for both race groups, the decrease has been larger for nonwhites, producing a smaller racial differential in 1980 than in 1950. Thus, the racial gap *has* narrowed somewhat with regard to this condition, and a possible improvement has occurred in medical care among the disadvantaged vis-à-vis diseases of the heart.

2. Cerebrovascular Disease

"The term 'stroke' is applied to the sudden onset of vascular disorders affecting the brain or spinal cord. The prototype clinical manifestations are sudden weakness or paralysis of an arm or leg; disturbance of speech, balance, vision, or memory; or, even coma. There are three main causes of stroke: 1) blockage of an artery by atherosclerosis; 2) hemorrhage into the brain because of a rupture of an artery (usually associated with hypertension); and, 3) an embolus, often the result of a blood clot from the heart lodging in an artery." (3, p. 15)

Cerebrovascular disease was responsible for about 800,000 hospitalizations in 1981, representing 2.2 percent of all discharges among whites and 1.6 percent among all other races (see Table 3).

"Although the treatment of stroke has improved during recent years, a major stroke is about as likely to be lethal as an acute heart attack and is more likely to produce severe disability with consequent lost earning potential and severe socioeconomic impact." (3, p. 15) Of the roughly 250,000 Americans who survive strokes, " . . . many remain disabled by paralysis, speech difficulties, and memory loss. Nearly 10 percent of nursing home admissions in people under 65 are because of strokes." (10, p. 56)

For the past several years cerebrovascular disease has been the third leading cause of death in the United States, accounting for 8.6 percent of all deaths in 1980 (see Table 1). Age-adjusted death rates for cerebrovascular diseases decreased 54 percent between 1950 and 1980 (see Table 5), an even greater decline than that observed for heart disease (34 percent) in the same time period. While a decrease in death rates from this cause occurred in the total population, a slightly higher percentage decrease (41.2 percent) was experienced by all other races than was experienced by whites (38.5 percent) between 1970 and 1980. Thus the ratio of nonwhite to white mortality rates was lower in 1980 (1.66) than in 1970 (1.73). The burden of this cause of death is still much heavier on racial minorities than the rest of the population, and heavier on blacks than on all nonwhites. Nonwhites have a 66 percent higher death rate than whites, while black death rate (2, p. 32) runs 80 percent higher than the white death rate.

Several risk factors are associated with cerebrovascular disease, only the most prominent of which are mentioned here. Persons who have high blood pressure, diabetes, or certain ECG changes are at greater risk of developing a stroke (11, p. 338). As the following sections indicate, the disadvantaged seem to have higher rates of several of the risk factors associated with stroke, especially hypertension and diabetes.

3. Arteriosclerosis

Arteriosclerosis, a condition commonly called hardening of the arteries, is a term used to describe a group of diseases affecting arteries in a particular way. Atherosclerosis applies specifically to arteriosclerosis that affects large arteries. "It is the underlying pathologic condition in most cases of coronary heart disease, aortic aneurysm, peripheral vascular disease, and stroke . . . Atherogenesis is

the process that culminates in atherosclerosis." (3, p. 3)

Arteriosclerosis, besides its outstanding contribution to cases of stroke and heart disease, is directly responsible for a number of deaths. While its direct contribution to the total death rate is not of the same magnitude as stroke and heart disease, it is still among the 10 leading causes of death. The age-adjusted death rates for this cause of death were similar for whites, nonwhites, and blacks. In 1980, the number of deaths per 100,000 population among whites, nonwhites, and blacks were 5.6, 5.9, and 6.4, respectively (see Table 6 and reference 2).

While the age-adjusted death rate for this cause is slightly higher among blacks than whites, the proportion of deaths from this cause is higher for whites. It ranked eighth among leading causes for whites in 1980 compared with a ranking of twelfth for blacks (see Table 1). The difference in the relationship is probably due to the younger age distribution of blacks, which is accounted for in age-adjusted death rates (from reference 2) but not in the number of deaths (Table 1).

4. Hypertension

"An estimated 60 million Americans have high blood pressure that increases their risk of illness and premature death...Untreated hypertension is the largest single contributor to stroke and a major contributor to heart disease and kidney failure." (12)

Based on data from NAMCS, an estimated 25.1 million visits to office-based physicians were made by patients with essential hypertension in 1980. Also, "during 1980, hypertension was the leading illness related principal diagnosis and accounted for 9 percent of all visits." (13, p. 1)

Findings of the latest large scale sample of blood pressure ratings "indicate that there has been an increased awareness, treatment, and control of hypertension during the 1970's." (14) Blood pressure readings have been taken over the past 20 years by NCHS as part of eight surveys, four of which are presented in Tables 7 and 8. The three time periods are:

1) *Earliest Period*—1960-1962, data from the first National Health Examination Survey (NHES I);

2) *More Recent Period*—1971-1975, the first National Health and Nutrition Examination Survey (NHANES I), or 1974-1975, the first National Health and Nutrition Examination Augmentation Survey (NHANES IA); and

3) *Most Recent Period*—1976-1980, the second National Health and Nutrition Examination Survey (NHANES II).

Hypertension, also referred to as elevated blood pressure, is defined as a systolic reading of at least 160 and or a diastolic reading of at least 95 (15, p. 4; 16, p. 11; 14, p. 9). The prevalence rate of definite hypertension per 100 population for each 10-year age group for three time periods is presented in Table 7.

As with many chronic conditions, the prevalence rates of hypertension increase with age. At younger age levels a higher prevalence of hypertension is found among males than females but the reverse occurs at older ages. The crossover among blacks occurs at an earlier age (45, compared with 55 for whites)

and is less consistent than for whites (see Table 7). At every age level, for each time period, and for both sexes, the reported prevalence rate of hypertension is higher, and usually substantially higher, among blacks than whites.

Age-adjusted prevalence rates are presented in Table 8 for the four race/sex groups and three time periods. The trend for these three time periods is inconsistent. The 1976-1980 prevalence rates are similar to the 1960-1962 rates and lower than the 1974-1975 rates. Since the standard errors for 1974-1975 were large, comparisons will be made of 1960 and 1980 only. In 1960, black males and black females had almost twice the prevalence rates of white males and white females. In 1980, however, while black females had almost twice the rate as white females, black males had only one and one-third the prevalence rate of hypertension as white males.

Interpretation and comparisons over time are complicated by the inclusion of persons who are taking medication for hypertension in the hypertension category (even if their levels are below 160), since their hypertension is controlled. Perhaps a cleaner comparison may be made by referring to the "on medication and controlled" column of Table 8, where a more consistent pattern of increases in this category is seen from the first through the third survey. From 1960-1962 to 1976-1980, among white men, white women, and black women, roughly twice as many were on medication and controlled in 1976-1980 compared with 1960-1962. Among black men, three times as many were medicated and controlled in the latest time

period compared with the earliest time period. However, black men still have the lowest rate of hypertension control, 16.1 compared with 40.3 for white women, 38.3 for black women, and 20.9 for white men. While increased control of hypertension has occurred over time among blacks, the differential stills exists.

The National High Blood Pressure Education Program (NHBPE) was begun in 1972 and had as its goal decreasing the number of people with elevated blood pressure by 50 percent every 5 years. It has been suggested that "... more emphasis needs to be placed on research investigating probable biological differences attributable to ethnicity ..." and that there exists a need for racially differentiated preventive and treatment modalities (17).

While differentiated preventive and treatment modalities have not been instituted on any large scale, research investigating biological differences attributable to ethnicity has a head start due to the extensive data collection efforts on the part of the National Center for Health Statistics. The first National Health and Nutrition Examination Survey (1971-1974) provides a rich source of relevant data (18). The size of the sample and the oversampling of high risk groups provides a means of comparing those groups. While no new variables were added, data from the survey strongly confirm some of the previously described relationships between blood pressure and obesity, dietary salt intake, and alcohol consumption, in addition to cigarette smoking, oral con-

traceptive use, and psychological status.

Two survey findings were of particular interest. 1) The influence of obesity on hypertension is similar in white and black persons and males and females in the United States. 2) The sodium/potassium ratio, Na/K, "was observed to be related to blood pressure in Black but not White persons, and, when Na/K was controlled, the Black/White differences in pressure were minimized or eliminated." (18, p. 24)

A panel of medical experts armed only with the published results of this ·survey might produce an outline for a differential hypertension control program for blacks. Emphasis on reducing the sodium/potassium ratio, possibly by increasing potassium intake, might be one facet of a differentiated preventive program for blacks.

5. Risk Factors of Major Cardiovascular Diseases

The four diseases comprising the major cardiovascular disease category (heart disease, cerebrovascular disease, arteriosclerosis, and hypertension) are interrelated. Since they are all diseases of the heart and blood vessels, it is natural that the occurrence of one of the four disease conditions in an individual increases the likelihood of the occurrence of one or more of the other three. We have mentioned that hypertension and arteriosclerosis are both risk factors for heart disease and stroke. The following excerpt, which attempts to define and describe risk factors associated with cardiovascular disease, sheds some light on the interrela-

tionship of these four disease categories.

"Since risk factors are based on associations uncovered in epidemiologic studies, a risk factor may be a causative agent, a secondary manifestation of an underlying metabolic abnormality or an early symptom of disease. . . .Among the risk factors, the three that best satisfy these criteria are hypercholesterolemia, hypertension, and cigarette smoking. As to the role of a diet high in cholesterol and saturated fat as a risk factor, the relationship is well established for population groups, and less consistently so for individuals within populations, although recent data are confirmatory for individuals as well . . . Other characteristics that are less strongly or less consistently associated with the probability of developing coronary heart disease are often referred to as probable or suspected risk factors. They include physical inactivity, personality behavior type, and a high concentration of blood glucose without overt diabetes mellitus." (3, p. 16)

C. Malignant Neoplasms

"The social and economic implications of cancer for victims and the society at large are pain, suffering, disability, and death; millions of years of life lost; vast amounts of human and economic resources devoted to detection, diagnosis, and treatment; and billions of dollars of economic output foregone annually because of lost human resources." (19, p. 1) The suffering experienced by the victims of this disease, families of the victims, and the remainder of the population who live in dread of this disease is indescribable. Available cancer morbidity

and mortality data will be used in this section to compare the impact of this disease on minorities and on the remainder of the population.

1. Incidence—All Sites

Figures 1 and 2 contain cancer incidence rates for whites and for racial and ethnic minority groups. The National Cancer Institute has a program that deals with the surveillance, epidemiology, and end results (SEER) of cancer. SEER provides data covering about 10 percent of the U.S. population. Data from this program are contained in Figures 1 and 2. Based on rates found in these exhibits, the ranking of American ethnic groups from high to low cancer incidence rates is as follows:

Rank	Males
1.	Hawaiian
2.	Black
3.	White
4.5	Japanese—Hawaii
4.5	Chinese—San Francisco
6.	Chinese—Hawaii
7.	Filipino
8.5	Hispanic—Puerto Rico
8.5	Hispanic—New Mexico
10.	Japanese—San Francisco
11.	American Indian

Black males had higher incidence rates than white males, while black females had lower incidence rates than white females, as shown above and in data presented in Figures 1 and 2. Similar findings were observed in three National Cancer Surveys, as well as from the SEER program for another time period (20, p. 21).

2. Incidence—Selected Sites

In examining individual cancer sites separately, the following racial/ethnic differences in incidence rates were found:

1. Esophageal cancer—Black males have an incidence rate four times that of white males (see Figure 4).
2. Stomach cancer—Among males, the rates for blacks, hispanics, and American Indians are higher than those for whites (20).
3. Cancer of the colon—Among both sexes, lower rates were found in Hispanic and American Indian populations, and higher or similar rates among Chinese, Japanese, blacks, and whites (see Figure 5).
4. Pancreatic cancer—

Rank	Females
1.	Hawaiian
2.	White
3.	Black
4.	Chinese—San Francisco
5.	Chinese—Hawaii
6.	Hispanic—New Mexico
7.	Japanese—San Francisco
8.	Japanese—Hawaii
9.5	American Indian
9.5	Filipino—San Francisco
11.	Hispanic—Puerto Rico

Among males, blacks have a higher incidence rate than whites (20).
5. Lung cancer—Black males have higher incidence rates than white males. Hispanics have relatively low incidence rates (see Figure 6).

Figure 1

Average annual age-adjusted cancer incidence rates (all sites) for males by race, SEER program, 1973–1977. Age-adjusted to the 1970 U.S. Population.
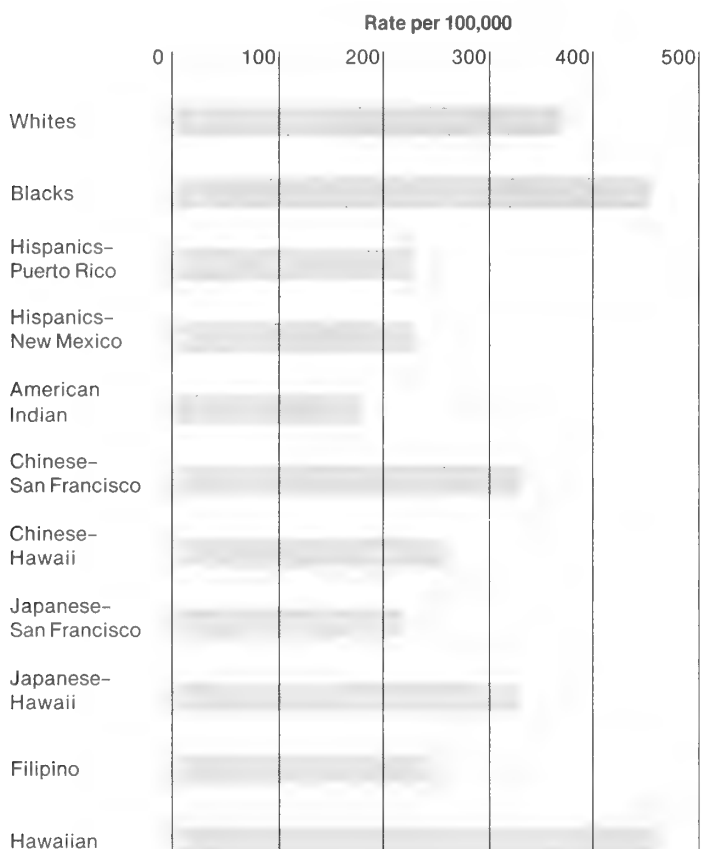
Rate per 100,000

Source: The National Cancer Institute, Surveillance, Epidemiology, and End Results Program (SEER). Taken from "Cancer in Minorities" by John L. Young in *Behavior, Health Risks, and Social Disadvantage*, Summary of a Conference, edited by Delores L. Parron, Frederic Solomon, and David Jenkins. Institute of Medicine. National Academy Press, Washington, DC, 1982.

Figure 2

Average annual age-adjusted cancer incidence rates (all sites) for females by race, SEER program, 1973–1977. Age-adjusted to the 1970 U.S. Population.

Rate per 100,000

Source: The National Cancer Institute, Surveillance, Epidemiology, and End Results Program (SEER). Taken from "Cancer in Minorities" by John L. Young in *Behavior, Health Risks, and Social Disadvantage,* Summary of a Conference, edited by Delores L. Parron, Frederic Solomon, and David Jenkins. Institute of Medicine. National Academy Press, Washington, DC, 1982.

6. Breast cancer—Breast cancer is the most common form of cancer among females in every ethnic group (20). Whites have a higher incidence rate than blacks (see Figure 7).

7. Prostatic cancer—The incidence of prostate cancer is higher in black males than in white males. It is the most common form of cancer in black males (20) (see Figure 8).

3. Mortality—All Sites

Cancer was the second leading cause of death in the United States in 1980, accounting for roughly one out of five deaths for the total population and for both racial groups (see Table 1).
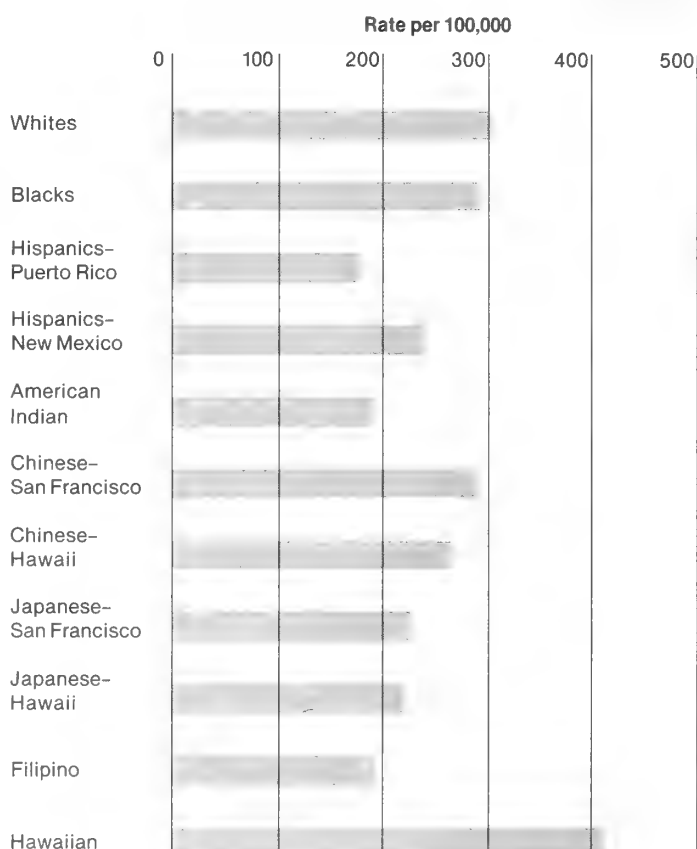
The relative position of the four race/sex groups with regard to age-adjusted death rates from cancer has changed between 1950 and 1980 (see Table 9, Figure 3, and rates listed below).

1950
Rank	Racial Group
1.	All other females (131.0)
2.	White males (130.9)
3.	All other males (125.8)
4.	White females (119.4)

1980
Rank	Racial Group
1.	All other males (209.0)
2.	White males (160.5)
3.	All other females (120.2)
4.	White females (107.7)

While rates for both white and nonwhite males were somewhat close in 1950, and rates for both groups have increased throughout the ensuing 30 years, the rates for nonwhite males have increased much more substantially during this period. While nonwhite females had the highest age-adjusted death rate from cancer in 1950, males of all other races had the highest rate in 1980. Nonwhite males have experienced a steady and steep increase in mortality from cancer, surpassing the rate for whites in 1959 and steadily climbing (see Figure 3). The gap in the cancer

mortality rates between minorities has been broadening among males.

A different picture emerges for females. While death rates for males have been climbing, the same 30-year period has witnessed a decline in cancer death rates for females. In 1950, death rates of females in both racial groups were in the same range as those for males. White females had lower rates than nonwhite females, and the discrepancy was slightly larger than that for males. Even though death rates have fallen among females of both racial groups, the disparity has been

preserved. During the shorter period from 1970 to 1980, cancer mortality among whites increased minimally (1.4 percent) but more substantially among all other races (6.7 percent).

4. **Mortality—Selected Sites**
Cancers of the digestive and respiratory systems combined were responsible for roughly half of all cancer deaths in 1980. Cancer of the digestive system combined with cancer of the genital organs and breast cancer accounted for almost three quarters of all cancer deaths in the same year. In Table 10 crude death rates for these four sites, for all cancer sites, and for all causes of death are presented for the years 1970 and 1980.

While death rates from *all causes* (cancer plus all other causes) decreased, death rates from *cancer* increased during this 10-year period for each racial/sex group at a rate of 12 to 14 percent. The greatest increase in death rates occurred in cancer of the respiratory system. The rate of increase was highest among white females and lowest among white males. There was a larger increase in breast cancer among non-white females than among white females, but white females continue to have higher death rates from breast cancer than nonwhite females (32.3 versus 20.5). A greater drop in cancer of the genital organs was experienced by nonwhite females (19.2 percent) than by white females (9.6 percent). This differential rate of decrease resulted in a slightly lower death rate in nonwhite females than white females (18.5 versus 19.7) in 1980, while the reverse was true in 1970 (22.98 versus 21.8). A greater increase in cancer of the genital organs was experienced by nonwhite males

Figure 3

Age adjusted mortality rates, all malignant neoplasma in Whites
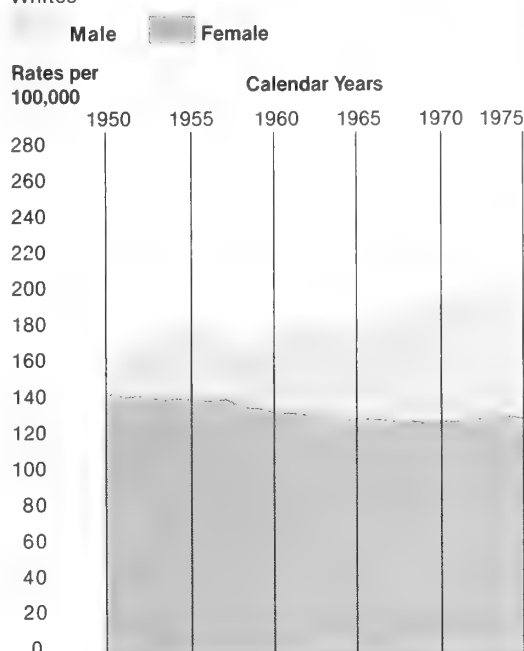
Age adjusted mortality rates, all malignant neoplasma in Nonwhites
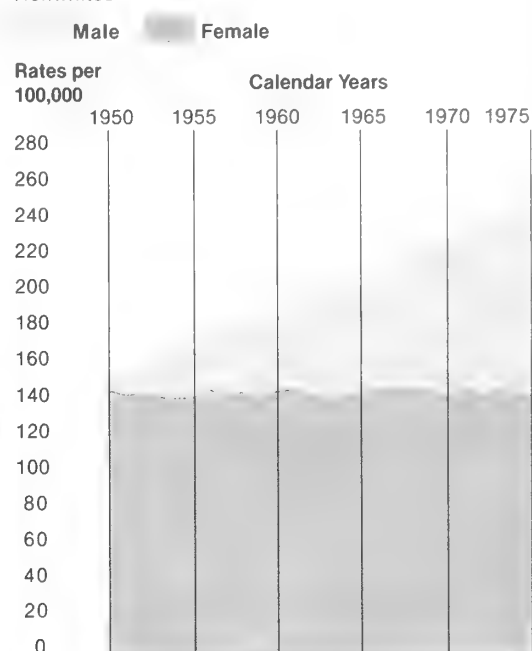
*Age-adjusted rate as percent of age-adjusted rate for all malignant neoplasms.
Includes: (ICD 140-205) [6th]; ICD 140–205 [7th]; ICD 140–207.9 [8th])
Source: Cancer Mortality in the United States: 1950–1977. NCI Monograph 59.
U.S. Department of Health and Human Services (PHS). NIH Publication No. 82-2455
U.S. Government Printing Office, Washington, DC, 1982. p. 2.

than by white males. Cancer of the digestive system increased for each racial/sex group with females of non-white races experiencing the greatest increase.

Age-adjusted site-specific cancer mortality rates were published for 1980 (2, p. 31) but not for 1970, and are therefore not included in Table 10. Since data in Table 10 are used for comparisons over time, crude rates, although not ideal, may be acceptable if it can be assumed that drastic changes did not occur in the age distribution between 1970 and 1980.

To provide measures of the relative differences between these two racial groups, however, age-adjusted rates provide more accuracy. These are available for 1980 (2, p. 31) and were used to calculate ratios of nonwhite-to-white mortality

rates by cancer site as shown below. For comparison purposes, ratios were also calculated using crude death rates.

Ratios of Nonwhite-to-White Mortality Rates—1980

| | Crude | | Age-Adjusted | |
	Male	Female	Male	Female
Respiratory	.85	.66	1.27	.99
Breast	–	.63	–	.93
Genital	1.23	.94	1.90	1.40
Digestive	.97	.78	1.46	1.31
All cancers	.88	.73	1.30	1.12
All causes	.95	.82	1.36	1.42

With only one exception, genital cancer among males, nonwhite mortality rates are lower than white mortality rates when rates are not adjusted. With the use of age-adjusted rates, however, mortality rates are higher among nonwhites than whites for all cancers combined, for all causes of death combined, and for each site included

above with the exceptions of breast and respiratory cancer. The breast cancer mortality rate of nonwhite females is lower than that of white females whether crude or age-adjusted rates are

used for the racial comparison. The differential is greater, however, when crude rates are used.

Among both males and females, the greatest racial differential was found for cancer of the genital organs when age-adjusted rates are used. Using crude rates, the

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Figure 4

Average annual age-adjusted cancer of the esophagus incidence rates for males by race, SEER program, 1973–1977. Age-adjusted to the 1970 U.S. Population.

Rate per 100,000

Source: The National Cancer Institute, Surveillance, Epidemiology, and End Results Program (SEER). Taken from "Cancer in Minorities" by John L. Young in *Behavior, Health Risks, and Social Disadvantage,* Summary of a Conference, edited by Delores L. Parron, Frederic Solomon, and David Jenkins. Institute of Medicine. National Academy Press, Washington, DC, 1982.

Figure 5

Average annual age-adjusted cancer of the colon incidence rates for males by race, SEER program, 1973–1977. Age-adjusted to the 1970 U.S. Population.

Rate per 100,000
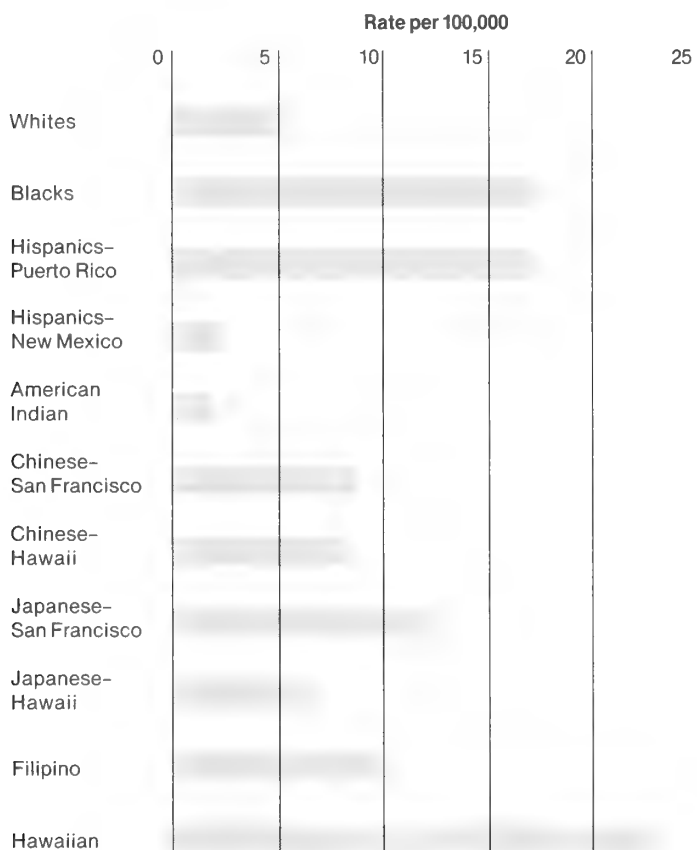
Source: The National Cancer Institute, Surveillance, Epidemiology, and End Results Program (SEER). Taken from "Cancer in Minorities" by John L. Young in *Behavior, Health Risks, and Social Disadvantage,* Summary of a Conference, edited by Delores L. Parron, Frederic Solomon, and David Jenkins. Institute of Medicine. National Academy Press, Washington, DC, 1982.

greatest racial differential was found for cancer of the genital organs when age-adjusted rates are ratioed. Using crude rates, the greatest differential among males was for cancer of the genital organs, but among females the site with the greatest racial differential was breast cancer.
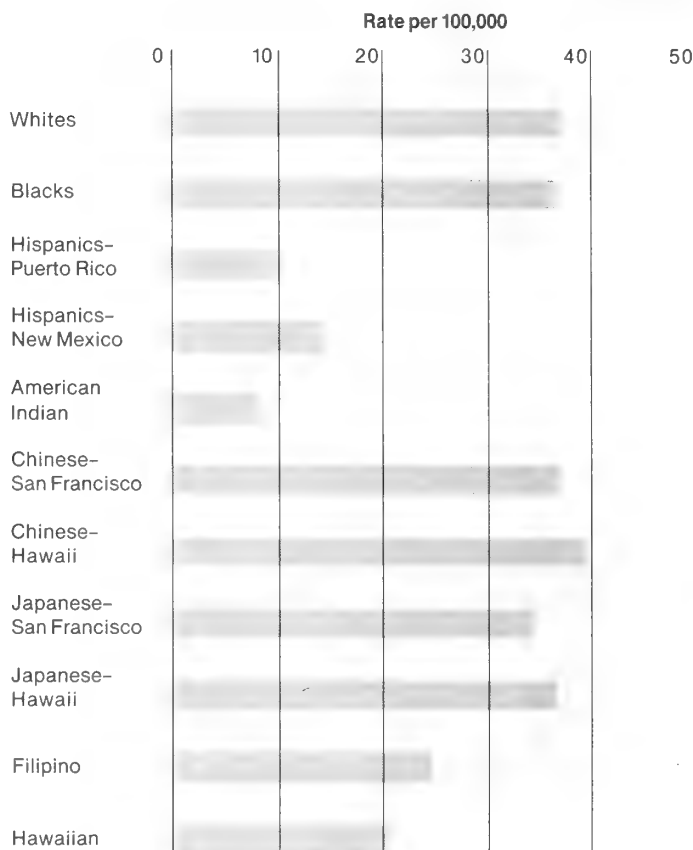
5. Risk Factors of Cancer

"There seems to be general agreement among researchers that the majority of cancers are related to environmental exposures, even though experts differ on the relative importance of such factors. Substances or condi-

tions known to be related to the risk of cancer are tobacco, alcohol, high fat diet, asbestos, drugs, suppression of immune capacity, and ionizing radiation." (21, p. 137)

"Some researchers suspect that genetic influences predisposing to risk for certain cancers may also be associated with socioeconomic status or factors highly correlated with socioeconomic status. These linkages have not been identified as clearly as the associations with exposure to factors in the environment. Research on genetic factors is expected to improve

understanding of the cancer differentials among racial/ethnic populations. A recent National Cancer Institute study has documented the fact that Hispanics develop at least one-third fewer cancers than other Americans. Among the possible explanations for this are genetic factors, although the strongest contributing factors seem to be associated with life styles, especially diet. There is good evidence that a diet high in animal and dairy fats causes an increase in some cancers, especially of breast and colon. Poverty and tradition have produced
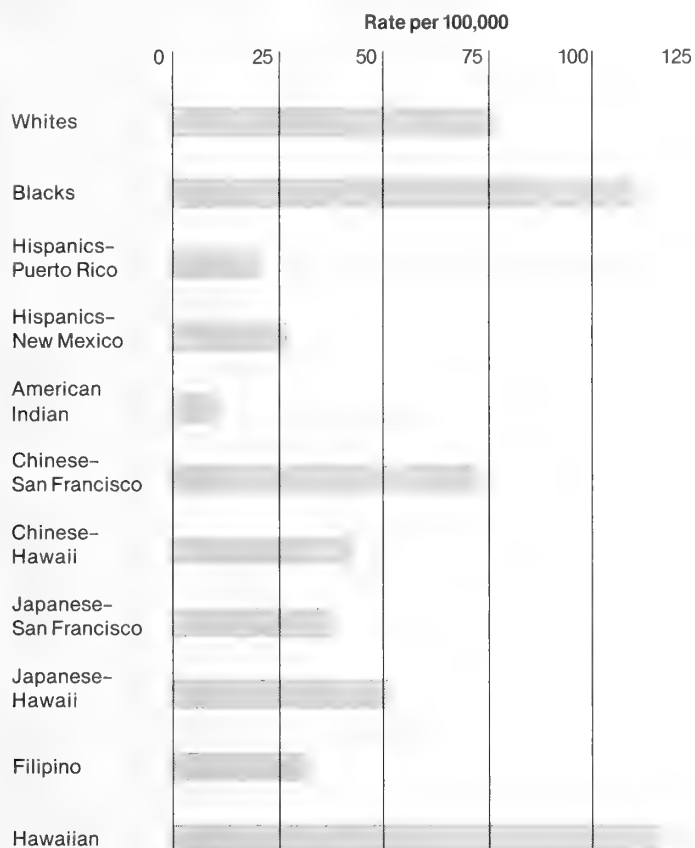
an Hispanic diet high in proteins from legumes rather than from meat." (21, p. 137)

"Social epidemiologic research has found that, even under conditions of equal employment, minorities experience differential exposure to pathogenic agents." (21, p. 136) Blacks and other minorities, to a larger degree than the total population, have been employed at the lowest paid, dirtiest, and least desirable jobs. That these types of jobs should also be more hazardous to health is not only obvious but also documented.

1. Blacks working in steel mills have higher cancer

Figure 6

Average annual age-adjusted lung cancer incidence rates for males by race, SEER program, 1973–1977. Age-adjusted to the 1970 U.S. Population.

Rate per 100,000

	0	25	50	75	100	125
Whites						
Blacks						
Hispanics–Puerto Rico						
Hispanics–New Mexico						
American Indian						
Chinese–San Francisco						
Chinese–Hawaii						
Japanese–San Francisco						
Japanese–Hawaii						
Filipino						
Hawaiian						

Source: The National Cancer Institute, Surveillance, Epidemiology, and End Results Program (SEER). Taken from "Cancer in Minorities" by John L. Young in *Behavior, Health Risks, and Social Disadvantage,* Summary of a Conference, edited by Delores L. Parron, Frederic Solomon, and David Jenkins. Institute of Medicine. National Academy Press, Washington, DC, 1982.

Figure 7

Average annual age-adjusted breast cancer incidence rates for females by race, SEER program, 1973–1977. Age-adjusted to the 1970 U.S. Population.

Rate per 100,000

	0	25	50	75	100	125
Whites						
Blacks						
Hispanics–Puerto Rico						
Hispanics–New Mexico						
American Indian						
Chinese–San Francisco						
Chinese–Hawaii						
Japanese–San Francisco						
Japanese–Hawaii						
Filipino						
Hawaiian						

Source: The National Cancer Institute, Surveillance, Epidemiology, and End Results Program (SEER). Taken from "Cancer in Minorities" by John L. Young in *Behavior, Health Risks, and Social Disadvantage,* Summary of a Conference, edited by Delores L. Parron, Frederic Solomon, and David Jenkins. Institute of Medicine. National Academy Press, Washington, DC, 1982.

death rates than whites. Employment data reveal that disproportionate numbers of blacks are concentrated in the coke ovens, which are the greatest source of carcinogenic exposure in the steel industry.

2. Disproportionate numbers of blacks work in the mixing and compounding area of Akron rubber works plants, and "mixing and compounding workers have elevated rates of stomach, lung, blood, bladder, and lymphatic cancer." (22, p. 44).
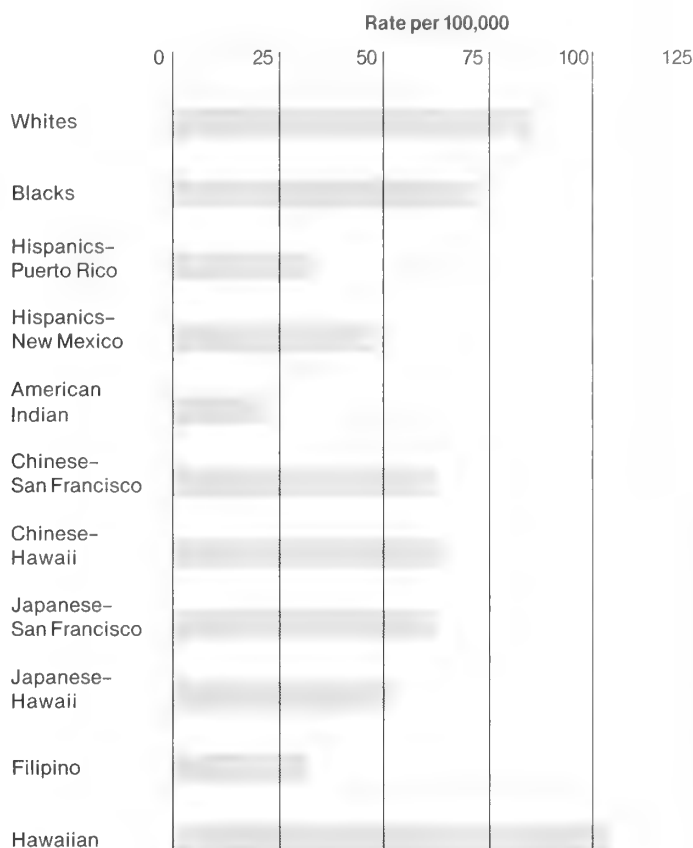
3. Conversely, "until relatively recently few blacks were employed in New Jersey's synthetic organic chemical and dye industry. While males throughout the state suffer disproportionately high bladder cancer rates, black males have been, for the most part, spared this epidemic." (22, p. 45)

"In order to better understand the health risk minority workers face, epidemiologists must begin to place a priority on studying minority workers within largely white cohorts, as well as in those industries and job titles in which minorities are over-represented. We must also begin to study the relationship between occupation and other societal risk factors, including malnutrition and childhood disease. These are long-term research goals and cannot substitute for immediate preventive programs. Minority workers still assigned to the most hazardous and least desirable jobs cannot wait for epidemiology to confirm that their jobs are killing them." (22, p. 147)

D. Diabetes

Diabetes was the seventh leading cause of death in the United States in 1980, accounting for about 2 percent of all deaths. "Diabetics have more severe atherosclerosis, twice as many heart attacks and about twice as many strokes as nondiabetics of the same age." (10, p. 59) Diabetes "is associated with 50 percent of all amputations among adults, 20 percent of all cases of kidney failure, and 15 percent of all cases of blindness." (23, p. 20)

The most feared outcome of the disease is diabetic acidosis or coma brought on by severe water depletion and electrolyte changes. "Before the discovery of insulin almost half (48 percent) of all diabetics died in coma. This figure has now dropped to 1.2 percent. Most diabetics now die of the complications of the disease, deterioration of kidneys and arteries or changes in the nervous

system. With insulin it is easy to keep the average diabetic patient alive for a long period of years, but little is known about how to prevent the serious complications that occur so frequently among diabetics." (24, p. 287)

Diagnoses of new cases of diabetes are occurring at about 600,000 cases a year (23). In 1973 (the last data year for which prevalence rates were published by race), according to the Health Interview Survey, the reported prevalence rate per 1,000 population among whites was 19.9 and among all other races 23.9 (25). Slightly more current prevalence rates for the four racial/sex groups are presented in Table 11. Among whites, age-adjusted prevalence rates are similar for males and females, but among nonwhites, age-adjusted diabetes prevalence rates are considerably higher for females than for males. The age-adjusted prevalence rate among nonwhite females (36.6) is 76.0 percent higher than the rate among white females (20.8). "Patients with diabetes mellitus made up about 9.6 million visits to office-based physicians in 1980." (6) In Table 12, details regarding physician visits for this condition are presented. Sixteen percent of all visits for diabetes were made by blacks, a percentage disproportionate with their distribution in the population (12 percent). This disparity might be even greater if visits to other settings, such as outpatient departments, were included.

Hospitalizations for diabetes increased in number for both whites and nonwhites between 1975 and 1981 (see Table 3), but as a percentage of discharges for

all causes, they have only increased a tenth of a percent for each race. In 1981, the proportion of total discharges represented by this disease among races other than white was 2.2 percent, which is higher than that for whites (1.6 percent).

Although the age-adjusted death rate from diabetes decreased 29.4 percent between 1950 and 1980 (see Table 13), increases in the death rate also occurred during this period. A consistent downward trend in diabetes death rates was observed in one group only, white females. Between 1970 and 1980, however, both racial groups experienced a decrease in death rates, with whites experiencing a larger decrease (29.5 percent), in comparison to all other races (25.4 percent).

Diabetes prevalence is also excessive among American Indians. The excessive prevalence among Indians is the subject of a long-term prospective study which began in 1965 on Pima Indians aged 5 years and older living on the Gila River Reservation in Southern Arizona (26). The age-adjusted death rate among American Indians is over twice that of the total population, 22.8 compared with 10.0 (see Table 14). There was a rise in death rates among both American Indians and all nonwhite races in the early 1970's, followed by a decline (see Figure 9). The rate remains highest, however, among American Indians and lowest among whites.

Various committees and commissions have been established in the United States since 1974 to plan, coordinate, and implement programs for education and for control of morbidity and mortality from diabetes (23, p. 17)."There is much in-

Figure 8

Average annual age-adjusted prostate cancer incidence rates for males by race, SEER program, 1973–1977. Age-adjusted to the 1970 U.S. Population.
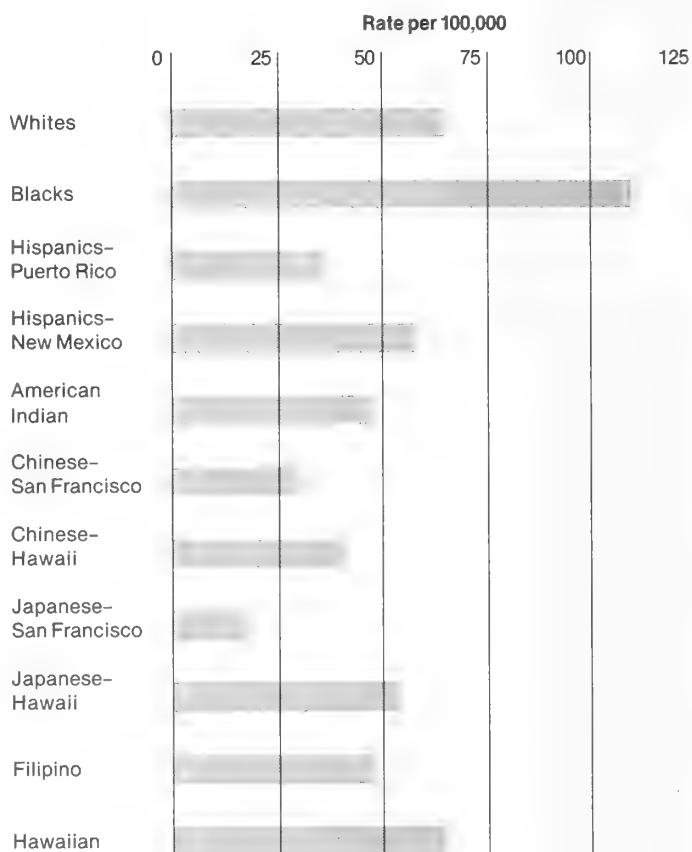
Source: The National Cancer Institute, Surveillance, Epidemiology, and End Results Program (SEER). Taken from "Cancer in Minorities" by John L. Young in *Behavior, Health Risks, and Social Disadvantage,* Summary of a Conference, edited by Delores L. Parron, Frederic Solomon, and David Jenkins. Institute of Medicine. National Academy Press, Washington, DC, 1982.

terest in the role of environmental factors which may precipitate disease in genetically susceptible individuals. Factors under investigation include lack of exercise, both quantitative (calorie intake) and qualitative (fiber, simple sugar, etc.) aspects of diet, obesity, and psychosocial stress. The varying rural/urban gradient noted in studies in this region suggest an interaction between genetic and environmental factors in the causation of diabetes." (27, p. 80)

## E. Chronic Respiratory Conditions

The most recent chronic nontubercular respiratory condi-

tion prevalence data by race from the National Health Interview Survey were published in 1974, and were included in the 1979 edition of *Health Status of Minorities and Low Income Groups* (28, pp. 106-107). At that time some of the most prevalent conditions were chronic sinusitis, hay fever, and hypertrophy of tonsils and adenoids. Nonwhites had lower prevalence rates for almost all of the 15 leading chronic, nontubercular, respiratory conditions.

The converse is true in the case of tuberculosis, for which prevalence rates are considerably higher among the disadvantaged. Tuber-

Figure 9
Age-adjusted diabetes mellitus death rates.

Per 100,000
Population
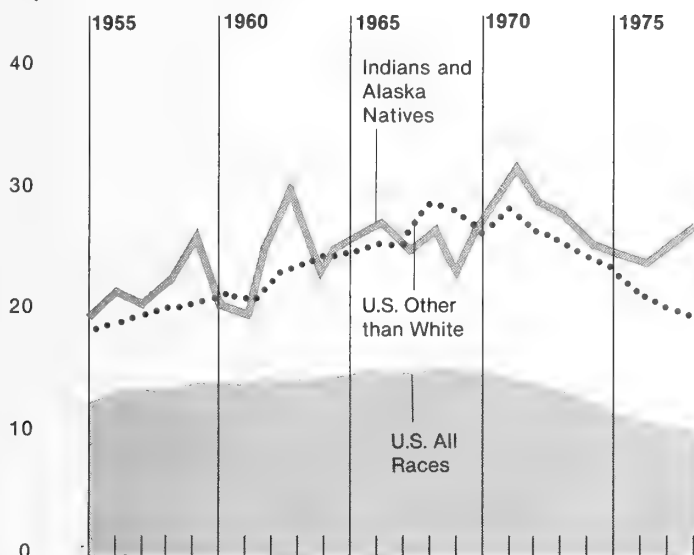
culosis morbidity is presented in Table 15 for Indian and Alaska Natives, as well as for other racial comparison groups. The racial group experiencing the greatest decline in morbidity between 1971 and 1981 was the Indian and Alaska Native. The case rate of tuberculosis in 1971 was 157.4 per 100,000 population, a rate almost three times greater than the rate in 1981 (54.1 cases per 100,000 population). The racial differential in 1981 was still substantial. Indian and Alaska Natives had almost four and a half times the case rate (54.1) as all races (11.9) in the United States, while nonwhites had over three times the case rate (37.6) as had all races combined (11.9).

A similar situation exists with regard to tuberculosis mortality (see Table 16). While the age-adjusted mortality rate from tuberculosis among Indian and Alaska

Natives in 1969 (16.1 deaths per 100,000 population) was roughly two and a half times the mortality rate in 1979 (4.4 deaths per 100,000 popula-
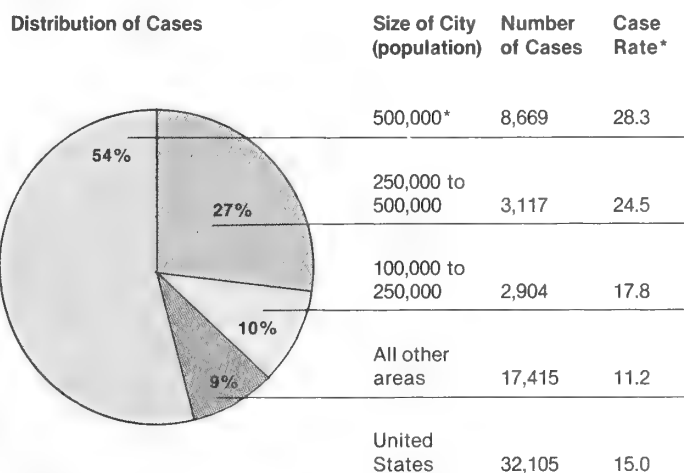
tion), the rate was still over six times that of the total U.S. population (0.7). While there is room for improvement, a considerable reduction in both morbidity and mortality from tuberculosis has been experienced by Indian and Alaska Natives. "This amazing improvement in the tuberculosis situation among the Indians and Alaskan Natives is due primarily to the dedicated efforts of the staff of the Indian Health Service. Active cases of tuberculosis have been subjected to careful regimes of chemotherapy, while family and other contacts have undergone prophylactic therapy with isoniazid" (24, p. 229)

A comparison of the morbidity and mortality ratios of Indians and of nonwhites (as calculated from morbidity and mortality rates found in Tables 15 and 16) is shown below. The entries are ratios of "Indian and Alaska Natives/All Races" and "Nonwhites/All Races."

Figure 10
Tuberculosis cases in large cities, United States, 1976.

Distribution of Cases

Size of City (population)	Number of Cases	Case Rate*
500,000*	8,669	28.3
250,000 to 500,000	3,117	24.5
100,000 to 250,000	2,904	17.8
All other areas	17,415	11.2
United States	32,105	15.0

*Per 100,000 population

	Indians	Nonwhites
Morbidity		
1979	4.48	3.14
1969	7.37	3.13
Mortality		
1979	6.29	3.57
1969	7.00	3.48

With regard to nonwhites in the United States, improvement has not been as striking as for Indians. While morbidity rates among nonwhites decreased, the morbidity differential (ratio of nonwhites to all races) remained roughly the same for 1969 and 1979 and the mortality differential increased. "Susceptibility to tuberculosis is probably inherited on a genetic basis. . .Certain physiological conditions such as malnutrition, fatigue, and diabetes render persons less resistant." (24, p. 277) Given these risk factors, particularly diabetes, plus the association of crowding and tuberculosis, it follows that the disadvantaged would be expected to have a higher prevalence of tuberculosis. According to a study of differentials in selected health status measures associated with residents in poverty and non-poverty areas in 19 large cities, "the malnutrition, overcrowding, and poor sanitation, so often prevalent in urban poverty areas, are conducive to the contraction and spread of infectious disease, particularly tuberculosis." (29, p. 18) The tuberculosis case rate is indeed higher in large cities where overcrowding is more likely to occur. The case rate is highest in cities with populations of 500,000 and more (28.3 per 100,000 population) and lowest in areas with populations under 250,000 (11.2 per 100,000 population) (see Figure 10).

F. Limitation of Activity Due to Chronic Disease Conditions

Limitation of activity is a measure of the long-term impact of chronic illness. It is defined as "the inability to carry on the major activity for one's age/sex group, such as working, keeping house, or going to school, restriction in the amount or kind of major activity, or restriction in relation to other activities, such as recreational, church, or civic interests" (30, p. 1)

The major causes of limitation of activity are heart conditions, arthritis, rheumatism, hypertension, diabetes, mental and nervous conditions, asthma, impairments of back or spine, impairments of the lower extremities and hips, and visual limitations (31. p. 26).

In Table 17, data based on crude rates from persons reporting limitation of activity due to chronic illness are presented by race, age, and income. In 1981, 26.5 percent of the population classified as poor (income of under $7,000) reported limitation of activity due to chronic illness, compared with 11.7 percent of the population classified as nonpoor (income of $7,000 and over).

A higher proportion of white poor (28.4 percent) report activity limitation than nonwhite poor (21.4 percent). Also, a higher proportion of white nonpoor (12.0 percent) report activity limitation than nonwhite poor (10.0 percent). In the total population, the poor are about two and one-quarter times as likely to report activity limitation as the nonpoor. In the white population, the poor are over two and one-third times as likely to have the activity limitation as the nonpoor. In the non-white population, the poor

are about two and one-seventh times as likely to have the activity limitation as the nonpoor. The increases from 1964 to 1981 in those reporting limitation of activity are as follows:

Percent Increase Among:	Poor	Nonpoor
Whites	1.4	33.3
All other races	26.6	38.9
All races	5.5	31.5

In summary:
1. Income differentials in activity limitation are greater than racial differentials.
2. A greater increase in activity limitation has occurred among nonwhite races than among whites.
3. Greater increases in activity limitation occurred among the nonpoor than among the poor.

These observations may defy explanation, but they do provoke comment. A larger percentage of chronically ill people in the population may be the tradeoff of health care delivery that prevents death without eliminating disease. The fact that races other than white have experienced greater increases in activity limitation than whites may mean that those races are receiving more of this type of health care. The greater increase among the nonpoor compared with the poor may also be due to more medical care or may be due to an unrefined income classification. The observation that income differentials in activity limitation are greater than racial differentials probably stems from the relationship between health and income. That is, poor health can interfere with the ability to earn income.

Looking briefly at Hispanics, a lower proportion

of activity limitation (based on crude rates) is found in this group. Among Hispanics only 9.9 percent reported activity limitation due to chronic disease in 1976-1978 (see Table 18).

Table 1

Number and percent of deaths from the 15 leading causes of death by race, United States, 1980.

Cause of Death and ICD Code		All Races		White		All Other			
						Total		Black	
		No.	%	No.	%	No.	%	No.	%
Diseases of the									
Heart	390-398, 402, 404-420	761,085	38.2	683,347	39.3	77,738	30.9	72,956	31.3
Malignant Neoplasms	140-208	416,509	20.9	368,162	21.2	48,347	19.2	45,037	19.3
Cerebrovascular Diseases	430-438	170,225	8.6	148,734	8.6	21,491	8.6	20,135	8.6
Accidents	E800-E949	105,718	5.3	90,122	5.2	15,596	6.2	13,480	5.8
Chronic Obstructive Pulmonary									
Diseases	490-496	56,050	2.8	52,375	3.0	3,675	1.5	3,380	1.4
Pneumonia and Influenza	480-487	54,619	2.7	48,369	2.8	6,250	2.5	5,648	2.4
Diabetes Mellitus	250	34,851	1.8	28,868	1.7	5,983	2.4	5,544	2.4
Chronic Liver Disease									
and Cirrhosis	571	30,583	1.5	25,240	1.5	5,343	2.1	4,790	2.1
Atherosclerosis	440	29,449	1.5	27,069	1.6	2,380	.9	2,252	1.0
Suicide	E950-E959	26,869	1.4	24,829	1.4	2,040	.8	1,607	.7
Homicide and Legal									
Intervention	E960-E978	24,278	1.2	13,558	.8	10,720	4.3	10,283	4.4
Certain Conditions Originating									
in Perinatal Period	760-779	22,866	1.1	15,457	.9	7,409	2.9	6,961	3.0
Nephritis, Nephrotic Syndrome,									
and Nephrosis	580-589	16,753	.8	13,137	.8	3,616	1.4	3,416	1.5
Congenital Anomalies	740-759	13,938	.7	11,471	.7	2,467	1.0	2,168	.9
Septicemia	038	9,438	.5	7,461	.4	1,977	.8	1,877	.8
Total (15 causes)		1,773,231	89.0	1,558,199	89.9	215,032	85.5	199,534	85.6
Other causes		216,560	10.9	180,408	10.4	36,202	14.4	33,601	14.4
All causes		1,989,841	99.9	1,738,607	100.3	251,234	99.9	233,135	100.0

Source: Prepared by CHESS, based on data from the National Center for Health Statistics: U.S. Department of Health and Human Services, *Monthly Vital Statistics Report*, Advance Report of Final Mortality Statistics, 1980, Vol. 32, No. 4. Supplement, August 1983. Tables 4 and 7.

Table 2

Number and percent distribution of drug mentions by selected therapeutic categories, according to race and ethnicity of patient: United States, 1980.

Selected therapeutic categories[2]	Race of Patient[1]				Ethnicity of patient			
	Black		White		Hispanic		Non-Hispanic	
	Number of mentions in thousands	Percent distribution	Number of mentions in thousands	Percent distribution	Number of mentions in thousands	Percent distribution	Number of mentions in thousands	Percent distribution
All categories	64,808	100.00	608,346	100.00	34,239	100.00	645,354	100.00
Antihistamine drugs	3,565	5.50	39,924	6.56	1,602	4.68	42,337	6.56
Anti-infective agents	9,541	14.72	94,050	15.46	6,143	17.94	98,755	15.30
Antibiotics	8,050	12.42	80,818	13.28	5,149	15.04	84,931	13.16
Antineoplastic agents	254	0.39	5,103	0.84	40	0.12	5,331	0.83
Autonomic drugs	3,130	4.83	21,844	3.59	1,551	3.71	23,686	3.67
Blood formation and coagulation	1,190	1.84	7,049	1.16	213	0.62	8,099	1.25
Cardiovascular drugs	6,342	9.79	57,785	9.50	1,858	5.43	62,605	9.70
Cardiac drugs	2,022	3.12	24,219	3.98	610	1.78	25,721	3.99
Hypotensive agents	3,174	4.90	19,270	3.17	696	2.03	21,937	3.40
Vasodilating agents	1,101	1.70	13,487	2.22	513	1.50	14,133	2.19
Central nervous system drugs	11,386	17.57	98,137	16.13	6,376	18.62	104,330	16.17
Analgesics and antipyretics	6,697	10.33	50,316	8.27	3,112	9.09	54,688	8.47
Psychotherapeutic agents	990	1.53	15,320	2.52	994	2.90	15,401	2.39
Sedatives and hypnotics	2,365	3.65	22,481	3.70	1,630	4.76	23,406	3.63
Electrolytic, caloric, and water balance	5,608	8.65	46,009	7.56	1,677	4.90	50,279	7.79
Diuretics	4,765	7.35	37,862	6.22	1,368	4.00	41,466	6.43
Expectorants and cough preparations	2,117	3.27	16,553	2.72	1,321	3.86	17,578	2.72
Eye, ear, nose, and throat preparations	2,485	3.83	23,392	3.85	912	2.66	25,165	3.90
Gastrointestinal drugs	2,323	3.59	21,581	3.55	1,313	3.83	22,827	3.54
Hormones and synthetic substances	5,854	9.03	49,503	8.14	3,097	9.05	52,746	8.17
Adrenals	1,459	2.25	16,757	2.75	780	2.28	17,532	2.72
Insulins and anti-diabetic agents	1,864	2.88	9,117	1.50	712	2.08	10,486	1.62
Serums, toxoids, and vaccines	1,835	2.83	21,555	3.54	1,481	4.33	22,230	3.44
Skin and mucous membrane preparations	3,998	6.17	50,804	8.35	3,033	8.86	52,155	8.08
Anti-inflammatory agents	1,488	2.30	20,605	3.39	1,409	4.11	20,898	3.24
Spasmolytic agents	1,172	1.81	10,234	1.68	809	2.36	10,732	1.66
Vitamins	2,198	3.39	21,792	3.58	1,490	4.35	22,754	3.53

[1]Excludes data on Asians, Pacific Islanders, American Indians, and Alaska Natives.
[2]Based on the pharmacologic-therapeutic classification of the American Society of Hospital Pharmacists; selected categories reproduced with the Society's permission.
Source: National Center for Health Statistics: Drug Utilization in Office-Based Practice, a summary of findings. National Ambulatory Medical Care Survey, United States, 1980. *Vital and Health Statistics*, Series 13, No. 65. DHHS Pub. No. (PHS) 83–1726. Public Health Service, Washington, DC. U.S. Government Printing Office, March 1982, Table 9, p. 27

Table 3

Number of discharges and average length of stay for patients discharged from short-stay hospitals, by selected first-listed diagnostic categories and color: United States, 1975 and 1981.

Diagnostic Category and ICDA Code		Year	Number of Discharges in Thousands		Average Length of Stay	
			White	All Other	White	All Other
Malignant Neoplasms	(140-209)	1975	1,217	137	13.0	16.0
	(140-206)	1981	1,705	243	11.5	13.3
Diabetes Mellitus	(250)	1975	385	79	10.0	11.5
	(250)	1981	514	141	9.5	10.4
Heart Disease (410-414) (391-392.0, 393-398, 402, 404,		1975	1,507	127	10.8	11.7
410-416, 420-429)		1981	3,009	330	9.2	10.2
Cerebrovascular Disease						
	(430-438)	1975	475	58	12.9	15.7
		1981	707	100	12.2	14.2
All Conditions[1]		1975	25,715	3,798	7.7	8.1
		1981	32,242	6,302	7.2	7.2

[1]Includes diagnostic conditions not shown in table.
(Excludes newborn infants and Federal hospitals.)
Note: Data in tables are underreported because color was not recorded on the hospital records of an estimated 4.5 million inpatients. Source: Compiled and abstracted by CHESS from 1) National Center for Health Statistics: Utilization of Short-Stay Hospitals: Annual Summary for the United States, 1975. DHEW Publication No. (HRA) 77-1782. Series 13, No. 31. U.S. Government Printing Office, Washington, DC, April 1977. 2) Unpublished, National Center for Health Statistics data.

Table 4

Age-adjusted death rates for diseases of the heart, by color and sex: United States, selected years from 1950 to 1980.

	Total			White			All Other		
Year	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
			Rates per 100,000 Population						
1980	202.0	280.4	140.3	197.6	277.5	134.6	234.2	299.6	138.5
1970	253.6	348.5	175.2	249.1	347.6	167.8	288.9	350.8	236.6
1960	286.2	375.5	205.7	281.5	375.4	197.1	324.2	368.3	283.3
1950[1]	307.6	384.2	234.4	300.5	381.1	223.6	375.1	407.5	342.9

For 1950 and 1960 rates are based on deaths assigned to category numbers 400-402. 410-443 of the Sixth and Seventh Revisions of the International Classification of Diseases adopted in 1948 and 1955. For 1970 rates are based on deaths assigned to category numbers 390-398, 402, 404, 410-429 of the Eighth Revision. For 1980 rates are based on deaths assigned to category numbers 390-398, 402, 404-429 of the Ninth Revision of the ICD
[1]Based on enumerated population adjusted for age bias in the population of races other than white
Sources: 1) Department of Health, Education, and Welfare: "Mortality Trends for Leading Causes of Death, U.S. 1950-69." Rockville, Maryland, Series 20, No. 16, Table P, p. 41. 2) Department of Health, Education, and Welfare: Monthly Vital Statistics Report, Summary Report, Final Mortality Statistics 1970, Vol. 22, No. 8.3) Advance Report, Final Mortality Statistics, 1980. Monthly Vital Statistics Report, Vol. 32, No. 4, Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD. August 1983.

Table 5

Age-adjusted death rates for cerebrovascular diseases, by color and sex: United States, selected years from 1950 to 1980.

	Total			White			All Other		
Year	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
	Rates per 100,000 Population								
1980	40.8	44.9	37.6	38.0	41.9	35.2	62.9	70.5	57.0
1970	66.3	73.2	60.8	61.8	68.8	56.2	107.0	113.5	101.4
1960	79.7	85.4	74.7	74.2	80.3	68.7	134.8	135.2	134.4
1950[1]	88.8	91.9	86.0	83.2	87.0	79.7	148.8	144.0	153.4

For 1950 and 1960 rates are based on deaths assigned to category numbers 330-334 of the Sixth and Seventh Revisions of the International Classification of Diseases. For 1970 and 1980 rates are based on deaths assigned to category numbers 430-438 of the Eighth and Ninth Revisions of the ICD
[1]Based on enumerated population adjusted for age bias in the population of races other than white
Sources 1) Department of Health, Education, and Welfare: "Mortality Trends for Leading Causes of Death, U.S. 1950-69." Rockville, Maryland, Series 20, No 16, Table P, p 41. 2) Department of Health, Education, and Welfare: *Monthly Vital Statistics Report*, Summary Report, Final Mortality Statistics 1970, Vol 22, No. 8 3) Advance Report, Final Mortality Statistics, 1980 *Monthly Vital Statistics Report*, Vol. 32, No. 4, Supp DHHS Pub No (PHS) 83-1120. Public Health Service, Hyattsville, MD. August 1983.

Table 6

Age-adjusted death rates for arteriosclerosis, by color and sex: selected years from 1950 to 1980.

	Total			White			All Other		
Year	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
	Rates per 100,000 Population								
1980	5.7	6.6	5.0	5.6	6.5	5.0	5.9	6.8	5.2
1970	8.4	9.5	7.5	8.4	9.6	7.5	8.2	9.1	7.5
1960	13.2	14.8	11.8	13.1	14.7	11.7	13.8	15.5	12.3
1950[1]	16.2	18.4	14.3	16.2	18.4	14.3	15.8	18.0	13.7

For 1950 and 1960 rates are based on deaths assigned to category number 450 of the Sixth and Seventh Revisions of the International Classification of Diseases. For 1970 and 1980 rates are based on deaths assigned to category number 440 of the Eighth and Ninth Revisions of the ICD
[1]Based on enumerated population adjusted for age bias in the population of races other than white.
Source: 1) Department of Health, Education, and Welfare: "Mortality Trends for Leading Causes of Death, U.S. 1950-1969." Rockville, Maryland, Series 20, No. 16, Table P, p 41 2) Department of Health, Education, and Welfare: *Monthly Vital Statistics Report*, Summary Report, Final Mortality Statistics 1970, Vol. 22, No. 8. 3) Advance Report, Final Mortality Statistics, 1980. *Monthly Vital Statistics Report*. Vol. 32, No. 4, Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD. August 1983.

Table 7

Prevalence rates[1] of adults 25-74 years with definite hypertension,[2] by race, age, and sex: United States: 1960-62, 1971-75, 1976-1980.

Age	White			Black		
	1960-62	1971-75	1976-80	1960-62	1971-75	1976-80
	Males					
25-34	3.6	7.5	8.4	12.5	16.4	11.7
35-44	11.8	14.0	10.6	26.5	36.3	22.3
45-54	16.5	22.6	21.2	30.9	36.7	23.0
55-64	20.2	25.2	22.3	44.6	58.6	39.2
65-74	25.0	30.8	24.5	52.7	43.3	27.5
	Females					
25-34	2.3	2.2	2.3	8.6	12.4	4.3
35-44	6.2	6.6	6.5	25.7	23.8	17.6
45-54	15.5	13.9	12.1	41.3	39.7	37.3
55-64	30.6	27.6	18.3	37.9	45.6	36.4
65-74	46.6	34.9	26.3	64.1	46.3	3.4

[1]Rate per 100 population.
[2]Systolic blood pressure of at least 160mm Hg and/or diastolic blood pressure of at least 95mm Hg
Sources: Abstracted and compiled by CHESS from: 1) Hypertension and Hypertensive Heart Disease in Adults, United States, 1960-62. National Center for Health Statistics, DHEW Publication No. (HRA) 74-1282, *Vital and Health Statistics.* Series 11, No. 13, November 1973, Table 2. 2) Hypertension in Adults 25-74 Years of Age. United States, 1971-1975. National Center for Health Statistics, DHHS Publication No. (PHS) 81-1671, *Vital and Health Statistics.* Series 11, No. 221. April 1981, Table 21. 3) Blood Pressure Levels and Hypertension in Persons Ages 6-74 years: United States, 1976-1980. National Center for Health Statistics. DHHS Publication No. (PHS) 82-1250. Advance Data No. 84, October 1982, Table 5.

Table 8

Prevalence rates of hypertension for persons 25-74 years of age by treatment history, race, and sex with standard errors of the percent: United States, 1960-62, 1974-75, and 1976-80.

Race and sex	Hypertensive[1]			Never diagnosed[2]			On medication			On medication and controlled[3]		
	1960-62	1974-75	1976-80	1960-62	1974-75	1976-80	1960-62	1974-75	1976-80	1960-62	1974-75	1976-80
	Percent of population[4]			Percent of total with hypertension[1,4]								
All people												
25-74 years[5] . . .	20.3	22.1	22.0	51.1	36.4	26.6	31.3	34.2	56.2	16.0	19.6	34.1
White men	16.3	21.4	21.2	57.6	42.3	40.6	22.4	25.9	38.3	11.8	15.1	20.9
White women . .	20.4	19.6	20.0	43.9	29.7	25.2	38.2	48.5	58.6	21.9	28.1	40.3
Black men	31.8	37.1	28.3	70.5	41.0	35.7	18.5	24.0	40.9	5.0	12.3	16.1
Black women . .	39.8	35.5	39.8	35.1	28.9	14.5	48.1	36.4	60.6	20.2	22.3	38.3
	Standard error of percent											
All people												
25-74 years[5] . . .	0.83	1.26	0.68	1.66	1.70	1.53	1.62	2.21	1.99	1.65	1.49	2.02
White men	0.95	2.19	1.04	3.75	2.63	1.80	3.07	3.22	2.47	2.59	2.56	2.01
White women . .	1.07	1.14	0.66	2.77	2.08	1.97	2.24	3.61	2.40	2.24	2.93	2.99
Black men	3.37	5.94	1.86	7.07	10.38	4.27	5.53	10.79	4.52	2.18	6.69	3.72
Black women . .	3.73	3.60	1.96	3.72	7.42	2.73	3.87	8.30	3.22	3.21	7.93	4.35

[1]Elevated blood pressure (that is, a systolic measurement of at least 160 mm Hg or a diastolic measurement of at least 95 mm Hg) or taking antihypertensive medication.
[2]Reported never told by physician that he or she had high blood pressure or hypertension.
[3]Subset of "On medication" group; those taking antihypertensive medication whose blood pressure was not elevated at the time of the examination.
[4]Age adjusted by direct method to the population at midpoint of the 1976-80 National Health and Nutrition Examination Series.
[5]Includes all other races not shown separately.
*Figure does not meet standards of reliability or precision.
Source: National Center for Health Statistics: Blood Pressure Level and Hypertension in Persons Aged 6-74 years: United States, 1976-80. DHHS Publication No. (PHS) 82-1250, Advance Data Number 84. U.S. Government Printing Office, Washington, DC, October 8, 1982, Table 7, p. 10.

Table 9

Age-adjusted death rates (per 100,000 population) for malignant neoplasms, by color and sex: United States, selected years from 1950 to 1980.

Year	Total Both Sexes	Total Male	Total Female	White Both Sexes	White Male	White Female	All Other Both Sexes	All Other Male	All Other Female
	Rates per 100,000 Population								
1980	132.8	165.5	109.2	129.6	160.5	107.7	158.2	209.0	120.2
1970	129.9	157.4	108.8	127.8	154.3	107.6	148.3	185.3	117.6
1960	125.8	143.0	111.2	124.2	141.6	109.5	139.3	154.8	125.0
1950[1]	125.4	130.8	120.8	124.7	130.9	119.4	128.6	125.8	131.0

For 1950 and 1960 rates are based on deaths assigned to category numbers 140-205 of the Sixth and Seventh Revisions of the International Classification of Diseases. For 1970 rates are based on deaths assigned to category numbers 140-209 of the Eighth Revision of the ICD. For 1980 rates are based on deaths assigned to category numbers 140-208 of the Ninth Revision of the ICD.
[1]Based on enumerated population adjusted for age bias in the population of races other than white.
Source: 1) Department of Health, Education, and Welfare: "Mortality Trends for Leading Causes of Death, U.S. 1950-1969." Rockville, Maryland, Series 20, No. 16, Table K, p. 30. 2) Department of Health, Education, and Welfare: *Monthly Vital Statistics Report*, Summary Report, Final Mortality Statistics 1970, Vol. 22, No.8; 3) Advance Report, Final Mortality Statistics, 1980. *Monthly Vital Statistics Report*. Vol. 32, No. 4, Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD, August 1983.

Table 10

Death rates of selected cancer sites by sex and race, 1970 and 1980.

Cancer Site		Year	White Males	White Females	All Other Males	All Other Females
Respiratory	(160-163)	1970	58.3	13.1	47.6	9.5
(Mostly lung)	(160-165)	1980	73.4	26.5	62.5	17.5
Breast	(174)	1970	—	29.9	—	18.3
	(174-175)	1980	—	32.3	—	20.5
Genital Male		1970	18.0	—	21.9	—
(Mostly prostate)	(179-187)	1980	20.8	—	25.6	—
Female		1970	—	21.8	—	22.9
(Mostly cervix, ovary, uterus)	(180-187)	1980	—	19.7	—	18.5
Digestive (Mostly esophagus, stomach, colon, rectum)	(150-159)	1970	51.5	43.9	48.7	31.6
		1980	52.9	46.7	51.2	36.3
All Cancers		1970	185.1	149.4	161.0	110.0
		1980	208.7	170.3	184.1	123.6
All Causes		1970	1086.7	812.6	1115.9	775.3
		1980	983.3	806.1	936.5	660.6

1970 crude death rates are based on Eighth Revision of International Classification of Diseases, 1980 rates based on Ninth Revision of International Classification of Diseases
Source: Abstracted and compiled by CHESS from: 1) Final Mortality Statistics, 1970, *Monthly Vital Statistics Report*, DHEW Pub. No. (HRA) 74-1120, Vol. 22, No. 11. February 1974. Table 3. 2) Advance Report of Final Mortality Statistics, 1980. DHHS Pub. No. (PHS) 83-1120, Vol. 32, No. 4. Supp. August 1983. Table 8.

Table 11

Crude and age-standardized type II diabetes prevalence rates, United States, 1976.

| | Prevalence per 1,000 Persons | | |
	Crude Rate	Age-Standardized Rate*	Ratio
All	21.6	21.6	1.0
White Males	19.3	20.0	0.92
White Females	22.7	20.8	0.96
Nonwhite Males	21.1	27.9	1.29
Nonwhite Females	30.7	36.6	1.69

Source: "The Public Health Impact of Diabetes" in *Advance in Diabetes Epidemiology*, Eveline Eschwege (Ed). INSERM Symposium No. 22. Institute Nationale de la Sante et de la Recherche Medicale, Elsevier Biomedical Press, Amsterdam, New York, Oxford, 1982, Table 2.
*Age-standardized to the U.S. 1976 population.

Table 12

Number of office visits for diabetes mellitus, number and percent of drug visits, number of drug mentions, drug mention rate, and drug intensity rate, by selected characteristics: United States, 1980.

Selected characteristic	Office visits			Drug mentions	Drug mention rate[2]	Drug intensity rate[3]
	All visits	Drug visits[1]				
Sex	Number in thousands	Number in thousands	Percent	Number in thousands	Rate per visit	
Both sexes	9,551[4]	7,592	79.5	17,496	1.83	2.30
Female	5,683	4,544	80.0	11,100	1.95	2.44
Male	3,868	3,048	78.8	6,396	1.65	2.10
Age						
Under 45 years	1,473	1,019	69.2	1,817	1.23	1.78
45-64 years	4,108	3,138	76.4	7,030	1.71	2.24
65 years and over	3,971	3,435	86.5	8,650	2.18	2.52
Race						
White	7,923	6,226	78.6	14,545	1.84	2.34
Black	1,510	1,290	85.4	2,774	1.84	2.15
Problem status						
New problem	871	602	69.2	1,019	1.17	1.69
Old problem	8,680	6,990	80.5	16,477	1.90	2.36
Major reason for visit						
Acute problem	1,087	879	80.9	1,831	1.68	2.08
Chronic problem, routine	7,122	5,660	79.5	12,962	1.82	2.29
Chronic problem, flare-up	805	689	85.5	2,034	2.53	2.95
Post surgery/post injury	*117	*39	*33.6	*95	*81	*2.44
Non-illness care	419	*324	*77.3	*574	*1.37	*1.77

[1]A visit in which one or more drugs were ordered or provided.
[2]Drug mentions divided by number of visits.
[3]Drug mentions divided by number of drug visits.
[4]Includes races other than white and black not shown as separate categories.
*Figure does not meet standards of reliability or precision (more than 30 percent relative standard error).
Source: National Center for Health Statistics: Medication Therapy in Office Visits for Selected Diagnoses: The National Ambulatory Medical Care Survey, United States, 1980. *Vital and Health Statistics*, Series 13, No. 71. DHHS Pub. No. (PHS) 83-1732. Public Health Service. Washington, DC. U. S. Government Printing Office. January 1983, Table 5, p. 13.

Table 13

Age-adjusted death rates for diabetes mellitus, by color and sex: selected years from 1950 to 1980.

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1980	10.1	10.2	10.0	9.1	9.5	8.7	18.8	16.4	20.6
1970	14.1	13.5	14.4	12.9	12.7	12.8	25.2	20.4	28.3
1960	13.6	12.0	15.0	12.8	11.6	13.7	21.6	16.1	26.8
1950[1]	14.3	11.4	17.1	13.9	11.3	16.4	17.2	11.8	22.6

For 1950 and 1960 rates are based on deaths assigned to category number 260 of the Sixth and Seventh Revisions of the International Classification of Diseases. For 1970 and 1980, rates are based on deaths assigned to category number 250 of the Eighth and Ninth Revisions of the IDC
[1]Based on enumerated population adjusted for age bias in the population of races other than white.
Source: 1) Department of Health, Education and Welfare: "Mortality Trends for Leading Causes of Death, U. S. 1950-1969." Rockville, Maryland, Series 20, No. 16, Table K, p. 30. 2) Department of Health, Education, and Welfare: *Monthly Vital Statistics Report*, Summary Report, Final Mortality Statistics, 1970. Vol 22, No. 8; 3) Advance Report, Final Mortality Statistics, 1980. *Monthly Vital Statistics Report*. Vol. 32, No. 4, Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD, August 1983.

Table 14

Diabetes mellitus deaths and rates (per 100,000 population) for Indians and Alaska Natives in reservation States and for the United States, all races and other than white populations, 1955–79.

Calendar Year	Number		Crude Rates		Age-Adjusted Rates and Their Ratio				
								Indian to:	
	Indian and Alaska Native	U.S. All Races	Indian and Alaska Native	U.S. All Races	Indian and Alaska Native	U.S. All Races	U.S. Other Than White	U.S. All Races	U.S. Other Than White
1979	170	33,192	—	—	22.8	10.0	18.5	2.3	1.2
1978	183	33,841	18.2	15.5	26.7	10.4	19.0	2.6	1.4
1977	161	32,989	18.3	15.2	24.6	10.4	19.5	2.4	1.3
1976	149	34,508	17.5	16.1	23.3	11.1	21.0	2.1	1.1
1975	145	35,230	17.4	16.5	23.8	11.6	21.7	2.1	1.1
1974	139	37,329	18.4	17.7	24.4	12.5	23.4	2.0	1.0
1973	157	38,208	19.7	18.2	28.4	13.2	25.3	2.2	1.1
1972	158	38,674	21.5	18.6	29.3	13.6	26.0	2.2	1.1
1971	166	38,256	21.5	18.5	31.7	13.8	27.5	2.3	1.2
1970	143	38,324	20.7	18.9	27.1	14.1	25.2	1.9	1.1
1969	127	38,541	20.1	19.1	21.1	14.5	27.7	1.5	0.8
1968	141	38,352	18.9	19.2	25.6	14.7	28.0	1.7	0.9
1967	107	35,049	18.9	17.7	23.3	13.7	24.5	1.7	1.0
1966	115	34,597	17.9	17.7	25.7	13.9	24.8	1.8	1.0
1965	110	33,174	17.6	17.1	25.4	13.5	23.6	1.9	1.1
1964	95	32,279	18.2	16.9	22.0	13.5	23.6	1.6	0.9
1963	115	32,465	17.6	17.2	29.9	13.8	23.1	2.2	1.3
1962	89	31,222	17.0	16.8	23.9	13.5	21.8	1.8	1.1
1961	70	30,098	14.8	16.4	19.6	13.3	21.0	1.5	0.9
1960	71	29,971	14.8	16.7	20.3	13.6	21.6	1.5	0.9
1959	82	28,080	14.8	15.9	26.1	13.4	19.4	1.9	1.3
1958	65	27,501	14.4	15.9	20.8	13.0	18.8	1.6	1.1
1957	62	27,180	14.3	16.0	19.6	13.5	18.2	1.5	1.1
1956	79	26,184	14.5	15.7	20.2	13.0	17.1	1.6	1,2
1955	64	25,488	14.6	15.5	17.0	13.0	16.5	1.3	1.0

[1]Indian and Alaska Native crude rates are 3-year rates centered in the year specified. All other rates are based on single-year data. Estimated population methodology for the Indian and Alaska Native population revised for 1976. Maine, New York and Pennsylvania included as reservation states beginning in 1979.
Source: Indian and Alaska Native—Indian Health Service. U.S. All Races and U. S. Other than White—National Center for Health Statistics, Annual Mortality Publication, Vol. II, Part A (1955–1975) and Annual Advance Final Mortality Reports (1976–1979). Taken from FY 1984 Budget Appropriation Indian Health Service "Chart Series" Tables. Vital Events Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD, April 1983.

Table 15

Tuberculosis morbidity rates per 100,000 population.

Calendar Year	Indian and Alaska Natives	Indian	Alaska Native	U.S. All Races	U.S. White	U.S. All Other
1981	54.1	50.9	88.6	11.9	7.7	37.6
1980	49.4	47.1	74.9	12.3	7.8	39.4
1979	56.4	51.9	94.0	12.6	8.3	39.6
1978	66.0	62.8	91.8	13.1	8.6	41.6
1977	62.8	58.2	99.6	13.9	9.2	44.8
1976	69.4	59.2	158.5	15.0	9.9	48.0
1975	102.2	102.4	100.5	15.9	10.7	50.9
1974	79.8	74.5	122.4	14.4	9.7	45.1
1973	107.6	102.4	150.7	14.8	10.2	46.3
1972	100.6	94.3	151.4	15.8	10.8	50.3
1971	157.4	152.0	200.3	17.1	11.7	53.8
1970	154.1	154.1	154.0	18.3	12.4	59.0
1969	140.8	141.6	134.3	19.1	13.7	59.7
1968	133.8	128.0	179.1	21.3	15.3	65.1
1967	155.8	152.7	179.8	23.0	16.6	70.2
1966	141.7	127.8	247.8	24.4	17.9	71.9
1965	201.5	160.5	507.8	25.3	18.6	74.9
1964	237.8	184.1	630.2	26.6	19.9	76.5
1963	234.0	192.3	534.9	28.7	21.7	81.5
1962	257.7	209.4	604.7	28.9	21.9	80.1
1961	318.8	284.8	562.8	37.0	—	—
1960	322.4	292.3	547.5	39.4	—	—
1959	418.0	338.2	1,048.0	42.6	—	—
1958	485.0	421.8	978.7	47.5	—	—
1957	565.2	426.9	1,649.7	51.0	—	—
1956	680.6	474.3	2,283.8	54.1	—	—
1955	758.1	563.2	2,325.7	60.1	—	—

Source: Tuberculosis Statistics, States and Cities, 1981 Pub. No. 83–8249, Center for Disease Control, Atlanta, GA, DHHS (to be published in 1983), and earlier reports in these series. Taken from FY 1984 Budget Appropriation Indian Health Service ''Chart Series'' Tables . Vital Events Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD, April 1983.

Table 16

Tuberculosis mortality, Indians and Alaska Natives in reservation States, United States, all races, and United States, other than white, 1955–79. (Rates per 100,000 population)

| | Crude Rate[1] | | | Age-Adjusted Rates[2] and their Ratio | | | | |
| | | | | | | | Ratio Indian and Alaska Native to: | |
Calendar Year	Indian and Alaska Native	Indian	Alaska Native	Indian and Alaska Native	U.S. All Races	U.S. Other than White	U.S. All Races	U.S. Other than White
1979	—	—	—	4.4	0.7	2.5	6.3	1.8
1978	4.2	4.2	3.4	6.2	1.0	3.1	6.2	2.0
1977	5.1	5.3	3.0	6.2	1.0	3.5	6.2	1.8
1976	6.1	6.3	3.8	8.5	1.1	3.8	7.7	2.2
1975	7.5	7.5	7.5	9.9	1.2	4.0	8.3	2.5
1974	7.4	7.3	8.7	9.8	1.3	4.6	7.5	2.1
1973	7.5	7.3	9.4	9.1	1.5	5.2	6.1	1.8
1972	7.3	7.2	7.7	10.7	1.7	5.9	6.3	1.8
1971	8.3	8.2	10.4	10.6	1.8	6.6	5.9	1.6
1970	9.7	9.6	11.2	11.4	2.2	6.8	5.2	1.7
1969	11.1	11.0	12.7	16.1	2.3	8.0	7.0	2.0
1968	12.8	12.8	12.9	16.5	2.7	9.4	6.1	1.8
1967	13.5	13.4	14.3	24.3	3.0	10.1	8.1	2.4
1966	15.3	15.4	15.3	23.7	3.4	10.8	7.0	2.2
1965	19.0	19.3	16.0	27.3	3.6	10.9	7.6	2.5
1964	21.8	21.6	24.0	29.5	3.8	11.5	7.8	2.6
1963	25.1	24.8	28.5	28.9	4.3	12.8	6.7	2.3
1962	26.0	25.3	34.0	37.2	4.5	13.4	8.3	2.8
1961	25.4	24.5	34.8	35.2	4.8	14.0	7.3	2.5
1960	26.6	25.1	43.1	32.3	5.4	15.1	6.0	2.1
1959	29.0	27.9	41.8	43.0	5.8	16.6	7.4	2.6
1958	34.3	31.5	65.1	39.6	6.5	19.0	6.1	2.1
1957	38.2	34.2	83.3	41.0	7.1	20.0	5.8	2.1
1956	46.2	40.2	116.8	47.6	7.7	22.0	6.2	2.2
1955	55.8	47.2	157.5	57.9	8.4	24.1	6.9	2.4

[1]Crude rates are 3-year averages centered in the year specified.
[2]Age-adjusted rates are for the single year specified.
Note: Estimated population methodology revised in 1976. Maine, New York, and Pennsylvania included as reservation States beginning in 1979.
Source: FY 1984 Budget Appropriation Indian Health Service "Chart Series" Tables. Vital Events Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD, April 1983.

Table 17

Percent of the population with limitation of activity due to chronic illness, by poor and nonpoor status, color, and age: United States, selected years 1964-81.

(Data are based on household interviews of the civilian, noninstitutionalized population.)

Age and year	Total Poor	Total Nonpoor	White Poor	White Nonpoor	All other Poor	All other Nonpoor
All ages	Percent of persons with limitation of activity					
1964	25.1	8.9	28.0	9.0	16.9	7.2
1973	25.6	9.7	27.2	9.9	20.6	8.6
1976	25.2	10.6	26.6	10.8	20.5	8.8
1978	26.4	10.9	27.8	11.0	22.2	9.5
1979	27.8	11.5	29.5	11.8	22.7	9.7
1980	27.0	11.7	28.2	11.9	23.4	9.5
1981	26.5	11.7	28.4	12.0	21.4	10.0
Under 17 years						
1964	3.1	2.0	3.3	2.0	2.7	2.2
1973	4.1	3.2	4.2	3.2	3.8	3.0
1976	4.8	3.5	5.0	3.6	4.5	3.0
1978	5.2	3.7	5.3	3.8	5.0	3.6
1979	4.9	3.8	5.7	3.9	3.8	3.5
1980	5.4	3.6	6.0	3.7	4.3	3.0
1981	4.4	3.6	5.1	3.7	3.5	3.3
17-44 years						
1964	13.3	7.2	13.4	7.3	13.1	6.7
1973	13.5	7.4	12.8	7.5	15.6	7.0
1976	13.4	7.7	13.2	7.7	13.8	7.6
1978	14.2	7.5	13.6	7.5	16.0	6.7
1979	14.3	7.9	14.1	8.0	15.0	7.1
1980	14.1	7.7	13.2	7.7	16.6	7.4
1981	14.7	7.5	14.6	7.6	14.8	6.8
45-64 years						
1964	36.7	16.0	37.4	16.1	34.5	14.1
1973	43.2	18.2	42.7	18.2	45.1	18.2
1976	43.7	19.4	42.8	19.5	47.3	18.6
1978	45.4	19.7	45.0	19.6	46.9	21.6
1979	48.5	20.0	47.0	20.0	53.1	20.3
1980	49.9	20.2	49.4	20.3	51.6	19.2
1981	51.9	20.5	51.8	20.2	52.1	23.0
65 years and over						
1964	55.2	43.1	54.2	42.8	63.0	49.7
1973	49.1	37.5	47.8	36.8	59.5	48.4
1976	50.2	40.7	49.4	40.6	55.6	42.3
1978	50.7	39.6	49.3	39.2	60.9	45.9
1979	52.8	41.7	51.6	41.3	61.0	48.8
1980	52.5	41.3	50.9	41.1	62.4	44.6
1981	53.1	41.6	52.4	41.2	57.5	48.4

Note: Definitions of Poor and Nonpoor are based on family income:

	Poor	Nonpoor
1964	under $3,000	$3,000 and over
1973	under $6,000	$6,000 and over
1976	under $7,000	$7,000 and over
1978	under $7,000	$7,000 and over
1979	under $7,000	$7,000 and over
1980	under $7,000	$7,000 and over
1981	under $7,000	$7,000 and over

Source: Unpublished data from the National Health Interview Survey, National Center for Health Statistics. Taken from Supplemental Data from the Health Interview Survey, unpublished (1983) to update earlier article: Wilson, Ronald W. and White, Elijah L. "Changes in Morbidity, Disability, and Utilization Differentials between the Poor and Nonpoor": Data from Health Interview Survey: 1964 and 1973. *Medical Care*, Vol. XV, No. 8. 636-646 August 1977. Table 11.

Table 18

Selected indicators of morbidity for persons of Spanish ancestry by type of Spanish ancestry according to family income and age: United States, 1976-78.

Family income and age	Total	Persons of Spanish Ancestry			
		Type of Spanish Ancestry			
		Mexican American	Puerto Rican	Cuban	Other Spanish
All Incomes[1]	Incidence of acute conditions per 100 persons per year				
All ages	217.3	215.5	228.3	175.4	228.1
Under 45 years . . .	234.5	230.0	236.1	214.2	250.9
45-64 years	144.5	140.0	205.3	94.4	148.0
65 years and over .	128.4	143.1	100.0	140.4	103.6
	Number of restricted activity days per person per year				
All ages	17.4	15.6	24.4	16.5	17.6
Under 45 years . . .	14.0	12.7	19.6	13.1	13.8
45-64 years	28.8	24.6	54.6	16.3	30.6
65 years and over .	43.4	50.8	39.1	33.3	39.1
	Number of bed days per person per year				
All ages	7.9	6.9	12.1	8.3	7.8
Under 45 years . . .	6.7	5.8	10.1	7.4	6.6
45-64 years	11.1	8.8	22.3	8.1	11.5
65 years and over .	20.6	25.0	26.6	13.3	16.1
	Number of work-loss days per currently employed person per year				
All persons 17 years or over . . .	5.5	5.1	7.4	4.2	5.9
17-44 years	5.5	4.8	7.4	6.0	6.5
45-64 years	5.1	6.0	7.9	1.4	3.6
65 years and over .	7.6	8.6	0.0	2.9	10.4
	Percent of persons with chronic activity limitation				
All ages	9.9	8.3	14.7	12.3	10.2
Under 17 years . . .	3.0	2.4	5.7	3.3	2.8
17-44 years	8.1	6.5	15.1	5.8	8.1
45-64 years	23.1	21.5	32.9	16.7	24.8
65 years and over .	45.6	48.4	57.1	40.4	39.3
	Percent of persons with "Fair" or "Poor" health perception				
All ages	13.1	12.5	18.9	12.6	11.2
Under 17 years . . .	6.3	5.6	10.0	4.7	5.9
17-44 years	12.4	11.4	20.9	8.9	10.1
45-64 years	27.4	29.1	38.6	16.7	23.2
65 years and over .	35.6	44.3	28.6	31.7	25.7

[1]Includes unknown income.

Source: "Using National Health Statistics for all Persons of Hispanic Ancestry as Surrogate Estimate for Persons of Specific Types of Ancestry: A preliminary Assessment of Problems of Bias." *In* Classification Issues in Measuring the Health Status of Minorities. U.S. Department of Health and Human Services, Public Health Service, Office of Health Research, Statistics, and Technology. National Center for Health Statistics. July 1980, Table 6.

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Chapter VI

Trauma: Accidents and Violence

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Chapter VI

Trauma: Accidents and Violence

Overview

The relative impact of accidents and violence on the disadvantaged in comparison with the general population is discussed below. White mortality data provide only a partial measure of the impact of these occurrences, the bulk of this analysis relies on mortality data, since current accident-related disability data with racial breakdowns are not available.

The disparity between nonwhites and whites with regard to accidental death rates has decreased in the past 10 years. In 1970, the age-adjusted accident mortality rate of nonwhites was 43 percent higher than that of whites. This differential dropped in 1980 to a rate among nonwhites that was only 19 percent higher than that of whites. Indians and Alaska Natives experience even higher accidental death rates, in comparison with the total population, than do all nonwhites. Death from accidents is the second leading cause of death among Indians and Alaska Natives, while it is the fourth leading cause of death for the total population. In 1979, the age-adjusted accident death rate of the Indian population was over three times that of the total population.

While mortality from all types of accidents combined is higher for nonwhites than whites, the reverse is true with regard to motor vehicle accident mortality. As a percentage of all accidental deaths, deaths from motor vehicle accidents represent proportionately more deaths for the total population (50 percent) than for nonwhites (40 percent) or for blacks (38 percent). Among males,

blacks had 50 percent more accidents (excluding motor vehicles) than whites in 1980, but 66 percent more in 1970. With regard to motor vehicle accident mortality, however, the rate among black males was 13.4 percent lower than the rate among white males in 1980.

Death from fire is one of the types of "all other accidental" deaths that occurs more frequently among nonwhites than among whites. The Metropolitan Life Insurance Company reported a fire death rate among nonwhites that was almost two and one-half times that of whites in 1976-1977. The differential was even greater in 1968-1969, when nonwhites experienced almost three times the death rate from fire as did whites.

Lead poisoning among children is of particular concern among the disadvantaged because their blood lead levels are higher. The toxic properties of lead are made worse by iron deficiency and undernutrition, conditions that tend to occur more frequently among the disadvantaged. Although blood lead levels were about 37 percent lower in 1980 than in 1976 for most segments of the population, the problem is still of concern. While only 2.0 percent of all white children 6 months to 5 years of age had elevated blood lead levels in 1980, 12 percent of all black children had elevated levels.

The racial differentials for homicide are higher than the racial differentials for any other cause of death. Black males have a homicide death rate over six times that of white males, and the homicide death rate of black females is four times that of

white females. Due to a large increase in the homicide death rate among white males and a small decrease among black males, the ratio of black to white death rates from this cause decreased from 9.94 in 1970 to 6.11 in 1980.

Despite the racial differences in mortality from accidents and violence, medical care utilization for trauma is quite similar for blacks and whites. Accidents, poisonings, and violence were the reasons for 9.0 percent of all physician visits made by black patients and 7.3 percent of all visits made by the total population in 1976-1977. Hospitalization for trauma as a proportion of hospitalization for all causes was roughly 9 percent for both whites and blacks in 1980

A. Introduction

This chapter focuses on the relative impact of various traumas on the disadvantaged in comparison with the remainder of the population. The bulk of the comparison relies on mortality data that are routinely disaggregated by race. In addition, medical care utilization statistics, namely physician visits and hospitalizations, are employed to compare segments of the population. While available mortality data adequately reflect the burden of accidental deaths on the disadvantaged compared with the total population, data on the frequency of nonfatal accidental injuries are not currently available, since injury rates by race were last published by the National Center for Health Statistics for the period 1965 to 1967.

The mortality data analyzed in this chapter were obtained from three sources: the vital statistics system of the National Center for Health Statistics, the National Safety Council, and the Metropolitan Life Insurance Company. Disability data (not race specific) were obtained from National Safety Council publications. Data describing lead toxicity in children were obtained from the childhood lead poisoning surveillance program of the Center for Disease Control (CDC) and from the Second National Health and Nutrition Examination Survey of the National Center for Health Statistics.

A potentially outstanding source of accident and injury data is the National Electronic Injury Surveillance System, run by the Consumer Product Safety Commission. The Commission does not, however, disaggregate its data by any demographic variables that allow the types of analyses desired here. Thus, no data from this rich source have been included in this chapter.

We have tried to investigate accidents from all causes, including industrial or work-related accidents, which are of considerable importance. Insurance companies cannot be deemed to have valid samples, and State Worker's Compensation bureaus and the Department of Labor's Bureau of Labor Statistics do not collect racial/ethnic data. Should such an analysis be considered important, these sources should be encouraged to add the pertinent demographic variables to their data systems.

While the treatment of this subject area can be only as comprehensive as existing data, within this familiar constraint several comparisons of the disadvantaged with the remainder of the population vis-à-vis accidents and violence are included in this chapter.

Additional caveats in the interpretation of the data presented are contained in Chapter 1 of this book. In particular, material pertaining to revised death rates should be noted.

B. Scope of the Problem

"More than 153,000 Americans die annually as a result of accidental injuries... It is estimated that in 1979, 70 million people suffered nonfatal accidental injuries requiring medical treatment. In 1980, the damage, injury, and lost productivity resulting from accidents cost the Nation an estimated $83.1 billion." (1, p. 80) The National Safety Council estimates that an average of 12 accidental deaths and 1,160 disabling injuries occur every hour in the United States (2). In 1978, six motor vehicle accidental deaths, one accidental death at work, and three accidental deaths at home occurred per hour (2). The death and injury tolls from acts of violence are equally staggering. "Every hour in the United States 15 or more people are stabbed, clubbed, or shot." (3, p. 581)

In their very comprehensive treatment of public health and community medicine, Burton, Smith, and Nichols include a cogent and concerned appraisal of the problem of accidents in this country:

This neglected epidemic of modern society is the nation's most important environmental health problem and is the leading cause of death in the first half of life's span....It is not only sad, but is a useless and tragic waste when young people's lives are needlessly and ruthlessly taken, or are permanently disabled due to accidents. The loss is not only to the individuals and their families but to the nation as well. These young people who otherwise could expect to live long and productive lives represent a loss of millions of productive man-years to our society....For children aged one to 14 years, accidents claim more lives than the six leading diseases combined. For youths aged 15 to 24 years, accidents take more lives than all other causes combined, and six and a half times more than the next leading cause in this age group. And this carnage continues. (4, p. 451)

It is only in recent years that serious attention has been given to the problem of accidents, especially to the problem of accident prevention. Part of the former inattention probably stemmed from a tendency to regard an accident as something due to chance and therefore beyond the control of the individual (3). The large life insurance companies have been credited with first giving attention to this problem by making efforts to reduce the extent of accidental injury or death. "As a result, some of the best health education work and promotion of home safety has been conducted by the larger insurance companies." (3, p. 674) Fire insurance companies and other large industries, and finally public health workers, joined in the effort to develop safety guidelines and to reduce accidents (3). In order to achieve noticeable reductions in the loss of life resulting from accidents and violence, efforts to prevent accidents must continue and attitudes must change.

"A new type of attitude is needed. Each person must become convinced that most accidents result from such causes as poor judgement, alcohol, or thoughtlessness and that these can be either prevented or markedly curtailed.... An aroused public and a concerted program could result in a decided reduction in this tragic and needless loss to our country and its people." (4, p. 449)

C. Accidents

This section opens with background material on how accidents are categorized by cause, location (home, work, etc.), and geographical location. Section C1 deals with the major group "all accidents" combined. In Sections C2, and C3, the subset "motor vehicle accidents" is discussed, followed by its complement, "all other accidents." In Sections C4 and C5, two subsets of "all other accidents" are discussed.

Accidents are conventionally grouped according to cause and place of occurrence. Motor vehicle accidents are typically the leading cause of accidental death and accounted for almost half (49.3 percent) of all accidental deaths in 1978. The percentage distribution of accidental deaths by cause in 1978 as reported in *Accident Facts* (2) appears below:

Motor vehicle	49.3
Falls	13.2
Drowning	6.6
Fires	6.0
Poisonings (solids and liquids)	3.3
Suffocation (ingested object)	2.8
Firearms	1.7
Poisonings (gases and vapors)	1.6
Other	15.5
	100.0

Accidental deaths and injuries are grouped according to place of occurrence in Figure 1. The percentage distribution by place of occurrence shown below refers to accidental deaths but not to injuries:

Place	Percent
Motor vehicle	49.3
Work	12.4
Home	·22.0
Public	20.6

While accidents in motor vehicles accounted for the greatest number of deaths (51,500) in 1978, home accidents resulted in the greatest number of disabling injuries (3.5 million) (see Figure 1). "The home, usually considered a sanctuary, may not be as safe as formerly imagined....Falls are the major cause of death, and fires are the next leading killer in home accidents. Every minute of the day, on the average, an American home is destroyed or damaged by fire." (4, pp. 449-450) Accidents vary by geographical location. "Although more injuries occur in urban areas, more deaths occur in rural areas and in towns under 2,500 population." (4, p. 449)

1. All Accidents

Accidents are the fourth leading cause of death in the United States, accounting for 5 percent of all deaths in

Figure 1

Accidental deaths and injuries in 1978. The death total in 1978 increased about 1,300 from 1977. Decreases in public and home deaths were offset by increases in motor-vehicle and work deaths. The death rate per 100,000 population was 47.9, the third lowest rate on record.

Type of Accident	Disabling Injuries 10,200,000*	Permanent Impairments 360,000	Temporary Total Disabilities 9,800,000	Deaths 104,500*	Change From 1977 +1%
Motor-Vehicle	2,000,000	150,000	1,850,000	51,500	− 4%
Public nonwork	1,800,000			46,900	
Work	200,000			4,400	
Home	10,000			200	
Work	2,200,000	80,000	2,100,000	13,000	+ 1%
Nonmotor-vehicle	2,000,000			8,600	
Motor-vehicle	200,000			4,400	
Home	3,500,000	90,000	3,400,000	23,000	− 1%
Nonmotor-vehicle	3,500,000			22,800	
Motor-vehicle	10,000			200	
Public	2,700,000	60,000	2,600,000	21,500	− 3%

Source: NSC estimates (rounded) based on data from the National Center for Health Statistics, state industrial commissions, state traffic authorities, state departments of health, insurance companies, industrial establishments and other sources. Taken from National Safety Council. *Accident Facts* 1979 Edition, Chicago, IL 1979. Page 3.

1980 (see Table 1, Chapter V). "Accident victims are not distributed evenly throughout the population. Teenagers and young adults have the highest motor vehicle death rate; fatal falls, which occur primarily in the home, disproportionately affect the population aged 75 and over; and children 10 years and younger are a high risk population for burns." (1, p. 80)

The age-adjusted death rate from all accidents was close to 60 per 100,000 population in the early 1950's, decreased to almost 50 in 1960, rose slightly to 54 in 1970, then decreased to almost 40 in 1980. As shown in Table 1, nonwhites had eight more accidental deaths per 100,000 population than whites in 1980 (49.5 compared with 41.5). The nonwhite-to-white accident mortality ratio has decreased from 1.43 in 1970 to 1.19 in 1980. Among males, a slightly greater reduction in the ratio of nonwhite-to-white accident death rates occurred during this 10-year period. This ratio dropped from 1.52 in 1970 to 1.26 in 1980. Among females, the nonwhite-to-white accident mortality rate decreased from 1.29 in 1970 to 1.16 in 1980.

Accidents were the fourth leading cause of death in the total population in 1980, but they were the second leading cause of death among Indians and Alaska Natives in 1978. The age-adjusted accident death rate exceeds the death rates from cancer and stroke in the Indian population (see Table 15, Chapter V). The accident death rate of Indian and Alaska Natives (140.7 deaths per 100,000 population) was over three times the rate for the total population (43.7) in 1979. The ratio is even greater in the age group 25 to 34, in which Indians have over four and one-half times the accident death rate of the total population (215.5 compared with 45.9 deaths per 100,000 population) (see Table 2 and Figure 2). The ratio varies from about one and one-half to almost four and one-half times the total population in other age groups, and never drops below that of the total population.

2. Motor Vehicle Accidents

Motor vehicle accidents claimed 51,500 lives and resulted in 2 million disabling injuries in the United States in 1978 (see Figure 1). As critical as the problem is in the United States, many European countries experience far higher numbers of motor vehicle deaths per population (see Table 3). "When the motor vehicle hazard is appraised in several different ways, the fatality rates in the United States compare quite favorably with the rates of other countries." (5, p. 11)

The category of motor vehicle accident deaths "includes deaths involving mechanically or electrically powered highway transport vehicles in motion (except those on rails), both on and off the highway or street." (2, p. 42) It includes collisions of motor vehicles with other motor vehicles (motorcycles, buses, tractors), with fixed objects, and with pedestrians, railroad trains, pedal cyclists, and other collisions (animals, street cars), as well as non-collision motor vehicle accidents (2).

The three basic elements in the causation of automobile accidents are the vehicle, the environment, and the driver. While automobile construction and poor road design account for many traffic accidents, the majority (80 percent) of all motor vehicle accidents are caused by the driver (4). From assorted studies of driver behavior and personality types, the following characteristics emerge. Drivers responsible for fatal accidents tended to be subject to more psychopathologic abnormalities, social stress, acute personality disturbances, paranoid and suicidal tendencies, and depression than other drivers (4). Various health problems (arthritis, mental retardation, visual and sensory defects) and failure

to wear seat belts have also been found to contribute to automobile accident fatality (4). Excessive alcohol consumption is a known contributor to automobile accident fatality. "At least 45 percent of all fatal motor vehicle accidents are alcohol related; in single vehicle accidents, 65 percent of drivers are legally drunk (i.e., with blood alcohol concentrations of over 0.10 percent)." (6, p. 45) Excessive alcohol consumption not only contributes to accidental death and injury among drivers and passengers but also among pedestrians. From study findings reported in 1976 (7, p. 14), a higher proportion of pedestrians injured in road accidents were found to have been drinking to excess.

"Nationally, over 70 percent of automobile fatalities occur in rural areas." (4, p. 449) Part of the excess may be due to vacationers and other travelers through rural areas; however, a "more apparent reason for increased deaths in the rural areas is the discrepancy in adequate first aid at the accident scene as well as delayed transportation to proper medical care facilities." (4, p. 449) One study of accident victims in a rural area demonstrated that 23 percent of the cases had "died of injuries felt to be either definitely or possibly survivable." (4, p. 449)

While death rates in 1978 from all types of accidents grouped together were the leading cause of death in each 5-year age group from 1 to 44 years, automobile accidents alone were, in the same year, the leading cause of death for each 5-year age group from 1 to 25 years. In the 25- to 44-year age group, cancer and heart disease ac-

Figure 2
Age-adjusted accident death rates
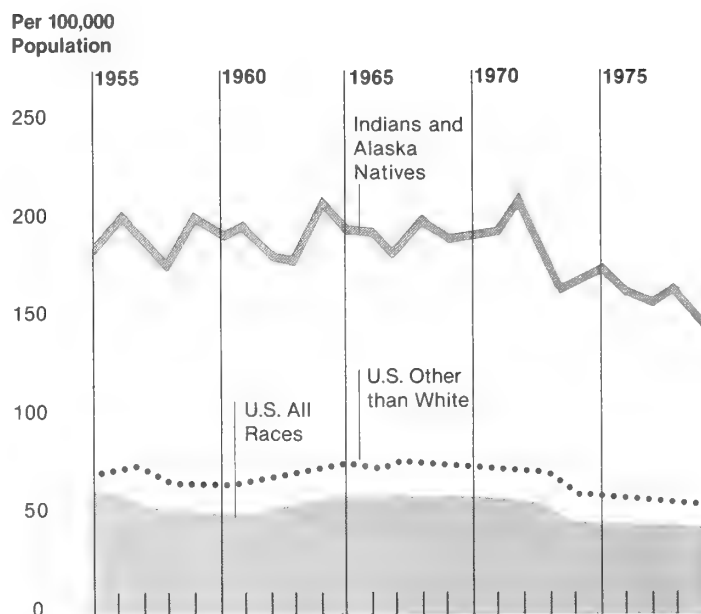
Per 100,000 Population

Source: FY 1984 Budget Appropriation Indian Health Service "Chart Series". Vital Events Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD, April, 1983.

count for more deaths than automobile accidents alone, but deaths from all accidents combined are still greater in number than deaths from cancer and heart disease. (2, pp. 8-9)

In 1980, the age-adjusted death rate for motor vehicle accidents was 22.9 per 100,000 population, a rate only slightly lower than the 1950 rate of 23.3 and 16.4 percent lower than the 1970 rate of 27.4 (see Table 4). Each race/sex group reflects the trends described above to varying degrees. Sex differences in motor vehicle accident mortality are greater than race differences.

The motor vehicle death rate was higher among black males in 1960 (5.4 percent higher) and in 1970 (13.3 percent higher) than among white males (see Table 5). In the intervening years, however, a reversal of positions occurred. By 1980, the motor vehicle accident death rate of black males (31.1

deaths per 100,000 population) was 13.4 percent lower than the rate for white males (35.9 deaths per 100,000 population).

No racial reversal occurred among females, but the racial trend was in the same direction. Black females had consistently lower motor vehicle accident mortality rates than white females from 1960 (13.4 percent lower) to 1980 (35.2 percent lower) (see Table 5). Motor vehicle mortality is greater among males than females, and the sex disparity is greater among blacks than whites. In 1980, black males had three and three-quarters the death rate from this cause as had black females (31.1 deaths per 100,000 population versus 8.3), and almost three and one-third the rate in 1970 (44.3 deaths versus 13.4). The ratio of motor vehicle deaths for white males to white females was 2.80 in 1980 and 2.64 in 1970.

Among Indians and Alaska Natives, accidental deaths were the second leading cause of death in 1979 (see Table 15, Chapter V). The motor vehicle accident death rate among this minority group (79.3 deaths per 100,000 population) (see Table 6) was three and one-third times the motor vehicle accident death rate of the total population (23.7 deaths per 100,000 population) in the same year. This represents a slight improvement during the years since 1969, when the Indian population motor vehicle accident death rate was almost three and one-half times that of the total population (99.1 versus 28.5).

We cannot be sure of the specific trait that places this minority group at higher risk for motor vehicle deaths. It is likely, however, that one cause of traffic accidents, drunken driving, may be a heavy contributor to accidents in this minority group, which is known to have a high prevalence of alcoholism (8). Another contributor may be proportionately more rural driving (on reservations) at higher speeds, and driving off-road terrains.

This discussion of motor vehicle accidents will conclude on a positive note: motor vehicle deaths and death rates are decreasing. The number of motor vehicle accident deaths was 51,091 in 1980; the number dropped to 49,301 in 1981, then dropped precipitously to 43,947 in 1982, and dropped slightly to 43,028 in 1983 (9).

Experts at the National Highway Traffic Safety Administration and at the Insurance Institute for Highway Safety were especially puzzled by the large drop from 1981 to 1982 (10). Such explanations as: (a) the downturn in the economy in

1982 (with the accompanying unemployment) resulting in decreased vehicle usage; (b) increased seat belt usage and other safety measures; and (c) the anti-drunk driving campaign were felt to be inadequate to explain this magnitude of change (10).

Perhaps a combination of proportionately greater numbers of smaller cars, more expensive cars (car prices soared in 1982), along with the downturn in the economy produced a cautious mindset in the majority of the population which had a spillover effect into more cautious driving patterns. The population age shift, resulting in fewer persons in the high-risk age group, may have also contributed to this effect.

3. All Other Accidents

Published accident mortality data are commonly classified into two broad categories: deaths resulting from motor vehicle accidents, and deaths resulting from all other accidents. While motor vehicle accidental deaths constitute roughly 50 percent of all accidental deaths for the total population as well as for the white population, they represent a far lower percentage of all accidental deaths among the nonwhite and black subpopulations (40.5 and 37.7 percent, respectively). The percentages of accidental deaths falling into these two categories by race were calculated from 1980 data (11, p. 27) and are shown below:

	All Races	White	All Other Races Total	Black
Motor vehicle	50.3	52.0	40.5	37.7
All other	49.7	48.0	59.5	62.3
All accidents	100.0	100.0	100.0	100.0

As discussed in the previous section, motor vehicle accident deaths for black males in 1980 were lower than for white males. They were not lower by a factor that would have resulted in the above differences, however. Therefore the proportional variations depicted in the above data are due both to blacks having lower motor vehicle accidental death rates, and to elevations in their death rates from other kinds of accidents. By inspection, and from the data that follow, it appears that the effect of nonautomobile deaths is the stronger of the two effects.

The age-adjusted death rate for all other types of accidents among nonwhites (29.3 deaths per 100,000 population) was 63 percent higher than that for whites (18.0) in 1980 (11, p. 33). Death rates for all other types of accidents by race and sex are presented in Table 5. Among males, blacks had a rate slightly over one and one-half times that of whites in 1980 (46.0 deaths per 100,000 population for blacks versus 30.4 for whites). The differential was greater in 1970 (1.66) due to a larger decrease in death rates among blacks than whites between 1970 and 1980. The racial differential among females, however, increased between 1970 and 1980 because of the larger decrease in rates among white females than among black females. The causes of

all other accidental deaths (excluding motor vehicle deaths) are listed below, along with the percentage for each type in the total population in 1978 (2).

Falls	26.0
Drowning	13.0
Fires	11.9
Poisonings (solids, liquids)	6.4
Suffocation (ingested object)	5.5
Firearms	3.4
Poisonings (gases, vapors)	3.2
Other*	30.6
	100.6

*Mechanical suffocation, struck by falling objects, electric current, air and railway transport, medical complications, and others.

The racial distribution of deaths from the three leading causes of other accidental deaths in 1978 were: falls—90.6 percent white versus 9.4 percent nonwhite; drowning—75.7 percent white versus 24.3 percent nonwhite; fires—71.2 percent white versus 28.8 percent nonwhite. (12, Table 4-5) Thus, compared with the population distribution (83 percent white versus 17 percent nonwhite), nonwhites had proportionately more accidental deaths from drowning and fires and proportionately fewer deaths from falls than did whites.

Deaths from fire are discussed below. Data related to lead poisoning in children are discussed in Part 5.

4. Fires

"Each year . . . (fires) result in about 6,500 deaths, more than 325,000 injuries and nearly $4.5 billion in property loss." (13, p. 5) Death from fires was the fourth leading cause of accidental death in 1978 (after traffic deaths, falls, and drowning). Although the number of lives

claimed by fire are a fraction of those claimed by traffic deaths (6,163 versus 52,144 in 1978) (12), death from fire occurs more frequently among nonwhites than among whites. Based on data from the Metropolitan Life Insurance Company, the mortality rate from fires among nonwhites was found to be almost two and one-half times the rate among whites (6.0 deaths per 100,000 population versus 2.5 deaths per 100,000 population) (see Table 7).

Death from fire decreased between the two time periods 1968-1969 and 1976-1977 (see Table 8). The percentage decreases in death rates from fires between the earlier and later periods were 13.8 for whites and 29.4 for nonwhites. The greater decrease among nonwhites compared with whites during this time period produced a nonwhite-to-white fire death rate ratio in 1976-1977 (2.40) that was lower than that in 1968-1969 (2.93).

Other information regarding fires includes the following: Males and both the very young and the elderly experience higher death rates from fires than do females and the adolescent and middle-aged segments of population. "The most common fatal accidents to children at home were from fires (36 percent)." (6, p. 45) Mortality due to fires increases with the onset of cold weather, with peak mortality occurring in January. (14, p. 6) Almost 87.6 percent of fires take place in residences (12). Geographically, the South and Southwest report the highest death rates from fires (14). The three leading causes of fires in 1970-1971 were (a) faulty wiring, or misuse of and

defects in electrical appliances and equipment; (b) defective or overheated heating and cooking equipment; and (c) poor smoking habits and the careless use of matches. (14, p. 8)

5. Lead Poisoning in Children

Although lead poisoning may be considered a chronic disease, it is classified by the International Classification of Diseases (15) among accidents and thus will be included here. Exposure to lead is a serious health problem among children (16, p. 16). In fact, one national goal listed in *Promoting Health/Preventing Disease: Public Health Implementation Plans for Attaining the Objectives of the Nation* is the reduction of the lead toxicity level in children from the current prevalence of 4,000 per 100,000 population to 500 per 100,000 population by 1990 (1, p. 56).

The Center for Disease Control provides data about lead toxicity in children based on roughly 60 federally funded screening projects in 25 states (16). "In 1980, 502,900 children were reported to have been screened, and 26,500 were identified with lead toxicity." (17, p. 133) In addition, in the first half of 1981, "almost 20,000 children were under pediatric management for lead toxicity." (18, p. 438)

Air, food, dust, dirt, soil, water, and lead-based paint are the most common sources of environmental lead for young children (16, p. 5). ". . . Because of higher metabolic rates and greater physical activity of children, it is estimated that under comparable exposure, children inhale two to three times more airborne lead per unit of body weight than adults do.

Even at relatively low levels of lead, subclinical effects of lead exposure in children, including impaired hematopoiesis and neuro-psychologic deficits, have been reported in the literature." (16, p. 5) Elevated blood lead levels in children are of particular concern "because of the vulnerability of the developing nervous system to lead," (19, p. 10).

The CDC surveillance program deals with selected locations and individuals who are potentially at high risk of exposure (16). Measurements of lead exposure by means of blood lead level from the Second Health and Nutrition Examination Survey (NHANES II), on the other hand, are based on a probability sample representative of the U.S. population (16). The CDC guideline for elevated blood lead levels is 30 micrograms or more per deciliter of whole blood, used by CDC for referring children for followup (16). An estimated 4.0 percent, or approximately 675,000 children 6 months to 5 years of age, have elevated blood lead levels (16, p. 12).

Mean blood lead levels are higher for blacks of all ages than for whites, but are appreciably higher among black children 6 months to 5 years of age (micrograms) than among white children of the same age (14.9 micrograms) (see Table 9). In addition, while only 2.0 percent of all white children 6 months to 5 years of age have blood lead levels of 30 micrograms or more, 12.2 percent of all black children have blood lead levels of this magnitude (see Table 9).

The toxic properties of lead are made worse by iron deficiency and undernutrition (19, p. 10). Because these conditions tend to occur

Figure 3

Mean blood lead levels (PbB) of children ages 6 months–5 years in large urban areas: United States, 1976–80
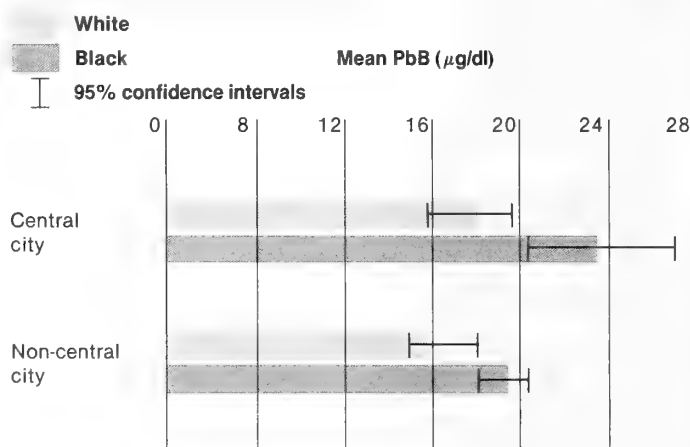
Source: National Health and Nutrition Examination Survey, National Center for Health Statistics. Taken from National Center for Health Statistics: Blood lead levels for persons 6 months–74 years of age: United States 1976–80. Advance Data From Vital and Health Statistics, No. 79. DHHS Pub. No. (PHS) 82-1250. Public Health Service. Hyattsville, MD, May 12, 1982.

more frequently in black children than white children, high blood lead levels among black children have even more severe consequences. Higher blood lead levels are found among children living in low income households and inner cities of large urban areas, as shown in Figures 3 and 4. At each income level in both central cities and noncentral cities, black children have higher blood lead levels than white children.

In the 4-year period between February 1976 and February 1980 (the period of NHANES II), a 36.7 percent reduction in the overall mean blood lead level was found among all races, ages, and both sexes (16). Part of the reduction is attributable to reductions of lead levels in the environment. "The most discernible change in environmental lead sources was the reduced use of lead in gasoline . . . " (17, p. 133)

"Although the decrease in mean blood lead levels was dramatic, the problem of pediatric lead poisoning in the United States has not

been solved." (17, p. 133) Lead poisoning in children remains a public health problem, particularly among the disadvantaged.

D. Violence

"Every hour in the United States 15 or more people are stabbed, clubbed, or shot. . . .The statistical chance of an American being murdered in any one year is almost 1 in 20,000." (3, p. 581)

Our attention in this chapter will be limited to domestic violence, and within that limitation, to crimes which result in death or injury. Thus we will be discussing homicide, suicide, rape, aggravated assault, and robbery with injury. Before discussing the relative impact of homicide on specified segments of the population, a few definitions are in order. "Practically speaking, homicide includes any violent death that is neither a suicide nor an accident. . . . Homicides . . . may be considered to fall into three categories. . . ." (3, p. 582)

Figure 4

High blood lead levels in children 6 months–5 years of age, according to annual family income and race: United States, average annual 1976–80
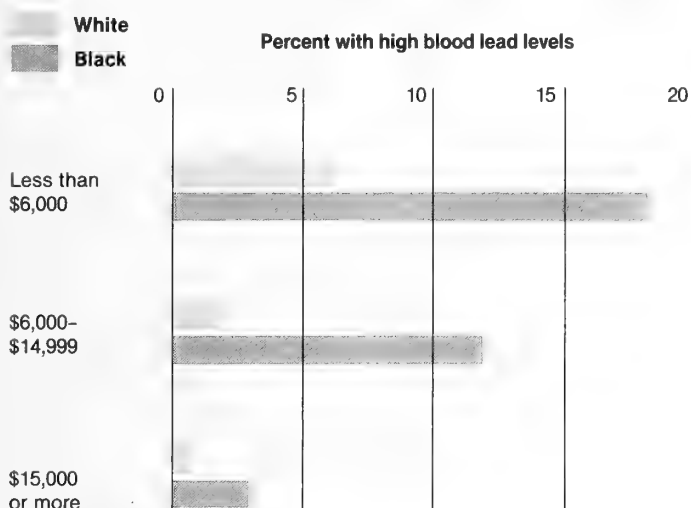
White

Black

Percent with high blood lead levels

The first category may be described as "planned killing that is consciously acceptable to the perpetrator at the time." (3, p. 582) This is commonly referred to as premeditated murder. It represents, however, only a small fraction of all homicides. The second type of homicide occurs as an emotional response, not consciously planned, to a conflict that may have extended over a period of time. The third type of homicide is committed as an act of self-defense by a law enforcement officer or an individual. About 80 percent of all homicides belong to the second category (3). Roughly 65 percent of all homicides of the first and second types occur among persons who know each other (3).

The risk of homicide varies dramatically among segments of the population. Age-specific homicide rates expressed as deaths per 100,000 population were highest among persons 15 to 24 years of age (15.6), 25 to

34 years of age (19.6), and 35 to 44 years of age (15.1) in 1980 (11, p. 18). The homicide rate in these age groups, especially among persons 25 to 34 years of age (a rate of 19.6), is almost twice the rate of the total population, 10.7

The racial differentials for homicide are higher than the racial differentials for any other cause of death. The ratio of black to white age-adjusted death rates for all causes of death was 1.50 in 1980, compared with a ratio of 5.88 for deaths from homicide and legal intervention (*see Table 16, Chapter II*). The ratio is even higher among males. In 1980, black males had a homicide rate of 66.6 per 100,000 population, while the white male rate was 10.9, a ratio of 6.11 (*see Table 5*). Black females, with a rate of 13.5 homicide deaths per 100,000 population, are over four times more likely to die as a result of homicide than white females, whose death rate from this

cause is 3.2 per 100,000 population. Due to a slight decrease of 1.5 percent in the homicide rate among black males since 1970 and a large increase in the homicide rate among white males (60.3 percent), the ratio of black-to-white death rates from this cause among males decreased from 9.94 in 1970 to 6.11 in 1980.

Among females, the ratio also decreased, from 6.33 in 1970 to 4.22 in 1980, due to the larger increase in deaths from this source among white females (52.4 percent) than among black females (1.5 percent).

Indians and Alaska Natives also have experienced disproportionately higher homicide rates than the population as a whole. In 1979, the Indian age-adjusted death rate from this cause was almost two and one-half times that for the total population (25.5 compared with 10.4 deaths per 100,000 population), but it was 29.2 percent lower than the rate for races other than white (36.0) (*see Table 10*).

Suicide has been a male-dominated and white-dominated form of violence. The ratio of male to female suicide has been approximately 3 to 1 among whites and approximately 4 to 1

among blacks (*see Table 5*). Among females, the rates increased after 1960 but seem to have stabilized since 1970. The rates among males have increased steadily throughout the same two-decade period, but the rise has been much sharper among black males. The result is that the white-to-black female ratio has been steady at about 2⅔ to 1. Among males, the white-to-black ratio has been dropping from under 3 to 1 to under 2 to 1.

The recent history of crimes with victims is summarized below. Blacks have for many years had higher crime victim rates than have whites. In the 5-year period from 1975 to 1980, however, it appears that their victim rates were decreasing and are starting to approach those of whites. This is probably due in part to the decrease in black rates. At the beginning of this 5-year period the black-to-white ratio for all crimes was 1.39, and that ratio decreased to 1.25 by the period's end. The rape rates were equal and relatively constant throughout that period. The robbery with injury rates went from a black-to-white ratio of 2.5 to 2.0, and the aggravated assault ratio decreased from 1.56 to 1.33.

Criminal Violence (20, p. 177) Rates per 1,000 persons						
	1975		1979		1980	
	White	Black	White	Black	White	Black
Rape	1	1	1	2	1	1
Robbery with injury	2	5	2	4	2	4
Aggravated assault	9	14	9	13	9	12
Total	31	43	34	42	32	40

E. Health Care Utilization for Trauma

Thus far, the impact of accidents and violence on the disadvantaged has been measured by deaths from these causes. Measurement of the relative impact of *non-fatal* accidents and violence is made difficult by the paucity of published data by race in this area. In lieu of prevalence data, two measures of medical care utilization are employed, namely physician visits and hospitalizations. These are far from ideal surrogate measures of prevalence of illness and disability resulting from accidents and violence. Most notably, comparisons among the disadvantaged and the remainder of the population tend to be distorted due to the tendency among members of lower socioeconomic levels to use health care facilities less than other groups.

In Table 11, physician visits for 1975-1976 are presented by major diagnostic groups and by race. For the combined category "accidents, poisonings, and violence," black patients had a slightly higher percentage of all visits (9.0 percent) than all patients (7.3 percent).

Hospitalizations for accidents, poisonings, and violence combined and for selected types of injuries are presented in Table 12 by race for 1971 and 1981. Hospitalizations for accidents, poisonings, and violence are very similar for each race for both 1971 (10.3 and 10.5 percent, respectively) and 1981 (9.3 and 9.7 percent) (*see Table 12*).

Table 1

Age-adjusted death rates for accidents, by color and sex: United States. selected years from 1950 to 1980[1].

Year	Total			White			All Other		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
1980	42.3	64.0	21.8	41.5	62.3	21.4	49.5	78.4	24.8
1970	53.7	80.7	28.2	51.0	76.2	27.2	72.8	115.7	35.1
1960	49.9	73.9	26.8	47.6	70.6	25.4	67.3	101.1	36.1
1950	57.5	83.7	31.7	55.6	81.0	30.6	72.0	107.1	38.8

[1]1950 and 1980 data are based on the Sixth and Seventh Revisions of the ICD respectively. 1970 and 1980 data are based on the Eighth and Ninth Revisons respectively
Source: Compiled by CHESS from 1) Department of Health, Education, and Welfare: "Mortality Trends for Leading Causes of Death, U.S. 1950-69." Rockville, Maryland, Series 20, No. 16, Table K, p. 30. And 2) National Center for Health Statistics: Advance report, final mortality statistics, 1980. *Monthly Vital Statistics Report*, Vol. 32, No. 4 Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD. August 1983

Table 2

Age-specific accident death rates (Rates per 100,000 population).

Age at Death	Indian and Alaska Natives CY 1977-79[1]		U.S. All Races CY 1978		Ratio of Indians and Alaska Natives to U.S. All Races
	Number	Rate	Number	Rate	Rate
Under 1	56	78.5	1,262	39.4	2.0
1-4	219	76.8	3,504	28.8	2.7
5-14	244	31.5	6,118	17.2	1.8
15-24	1,175	211.7	26,622	64.5	3.3
25-34	748	215.5	15,533	45.9	4.7
35-44	452	167.7	9,491	39.0	4.3
45-54	329	154.1	9,174	39.6	3.9
55-64	253	162.3	9,600	46.4	3.5
65-74	149	152.2	9,072	60.7	2.5
75-84	92	229.4	8,956	129.4	1.8
85 +	57	435.0	6,107	276.8	1.6

[1]Maine, New York and Pennsylvania included as reservation States beginning in 1979.
Source: FY 1984 Budget Appropriation Indian Health Service "Chart Series" Tables. Vital Events Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD, April 1982

Table 3

Mortality from motor vehicle accidents, selected countries, 1965-66 and 1975-76

| | Number of Motor Vehicles per 1,000 Population | | Average Annual Death Rate | | | |
| | | | Per 100,000 Population | | Per 100,000 Registered Motor Vehicles | |
Country	1965-66	1975-76	1965-66	1975-76	1965-66	1975-76
United States	482	655	26.3	21.7	54.5	33.0
New Zealand	361	516	20.9	20.5‡	58.0	39.9‡
Canada	346	505	26.4	24.1	76.1	47.7
Australia	342	493	27.9	27.4‡	81.7	56.9‡
France	351	466	24.8	25.5	70.9	54.8
Netherlands	285	411	20.6	17.4	72.5	42.3
West Germany* . . .	219	354	27.5	24.1‡	125.2	68.1
Denmark	343	345	21.3	16.8	62.1	49.8
Finland	233	340	23.2	19.3‡	99.7	57.6‡
Japan	159	339	14.2	9.2	89.7	27.1
Norway	218	316	11.7	12.6	53.3	39.8
Great Britain†	228	303	14.6	11.6	64.2	38.0
Italy	206	291‡	17.3	17.0‡	84.3	58.5‡

*Includes West Berlin
†Includes England and Wales, Northern Ireland, and Scotland.
‡1975 only.
Note: Ranked according to number of motor vehicles per 1,000 population in 1975-76
Source of basic data: *World Road Statistics 1972-76*, 1977 Edition, International Road Federation, Geneva, Switzerland; *1978 Demographic Yearbook*, United Nations; various reports of the National Center for Health Statistics, Statistics Canada, National Safety Council, and Motor Vehicle Manufacturers Association. Taken from Metropolitan Life Insurance Company. *Statistical Bulletin* Vol. 60, No. 2, April-June 1979, p. 9.

Table 4

Age-adjusted death rates for motor vehicle accidents, by color and sex: United States, selected years from 1950 to 1980.

| | Total | | | White | | | All Other | | |
Year	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
1980	22.9	34.3	11.8	23.4	34.8	12.3	20.3	32.9	9.4
1970	27.4	41.1	14.4	26.9	40.1	14.4	30.9	49.7	14.3
1960	22.5	34.5	11.0	22.3	34.0	11.1	24.4	39.5	10.6
1950	23.3	36.4	10.7	23.1	35.9	10.6	25.7	41.2	11.1

Note: Intercensal years' rates in this table have not been revised to reflect new population estimates that incorporate census years data
Source: Department of Health, Education, and Welfare: "Mortality Trends for Leading Causes of Death. U.S. 1950-69." Rockville, Maryland, Series 20, No. 16, Table K, p. 30. And National Center for Health Statistics: Advance report, final mortality statistics, 1980. *Monthly Vital Statistics Report*, Vol. 32, No. 4 Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD. August 1983.

Table 5

Death rates from accidents and violence: 1960 to 1980.

(Deaths per 100,000 population. Beginning 1970, exlcudes deaths of nonresidents or the U.S. Deaths for 1979 classified according to the Ninth Revision of the International Classification of Diseases, for earlier years classified according to the revision in use at the time.

Sex, cause of death, and age	White						Black					
	1960	1970	1975	1978	1979	1980	1960	1970	1975	1978	1979	1980
Male												
Motor vehicle												
accidents	31.5	39.1	32.2	36.2	37.3	35.9	33.2	44.3	32.7	32.7	32.0	31.1
All other accidents .	38.6	38.2	35.5	32.1	31.2	30.4	60.8	63.3	52.2	45.7	45.2	46.0
Suicide	17.6	18.0	20.1	20.2	20.0	19.9	6.4	8.0	10.0	10.8	11.6	10.3
Homicide	3.6	6.8	9.1	9.2	10.1	10.9	36.7	67.6	69.6	58.7	64.6	66.6
Female												
Motor vehicle												
accidents	11.2	14.8	11.4	13.1	13.0	12.8	9.7	13.4	9.3	9.7	8.9	8.3
All other accidents .	20.4	18.3	16.7	15.4	14.6	14.4	29.1	22.5	18.9	17.2	17.0	18.6
Suicide	5.3	7.1	7.4	6.9	6.6	5.9	1.6	2.6	2.7	2.8	2.8	2.2
Homicide	1.4	2.1	2.9	2.9	3.0	3.2	10.4	13.3	15.1	13.0	13.8	13.5

Table 6

Age-adjusted accident mortality rates, Indians and Alaska Natives in reservation States, United States, and, all races United States, other than white, 1955-1979.
(Single year rates per 100,000 population)

Calendar Year	Indian and Alaska Native			U.S. All Races			U.S. Other Than White		
	All Accidents	Motor Vehicle	Other	All Accidents	Motor Vehicle	Other	All Accidents	Motor Vehicle	Other
1979[1]	140.7	79.3	61.4	43.7	23.7	20.0	50.5	21.5	29.0
1978[1]	160.8	91.9	68.9	44.3	23.4	20.9	52.6	22.4	30.1
1977[1]	155.5	90.2	65.3	43.8	22.4	21.4	53.1	21.9	31.2
1976[1]	159.2	91.2	68.0	43.2	21.5	21.7	53.2	21.9	31.3
1975	170.5	94.1	76.4	44.8	21.3	23.5	56.9	22.5	34.4
1974	163.2	86.7	76.5	46.0	21.8	24.2	58.5	23.2	35.3
1973	202.7	117.1	85.6	51.7	26.4	25.3	67.5	30.0	37.6
1972	185.1	107.1	78.0	52.0	27.0	25.0	68.8	30.6	38.1
1971	183.0	96.5	86.5	52.0	26.6	25.3	71.6	31.3	40.4
1970	181.8	98.5	83.3	53.7	27.4	26.3	72.8	30.9	41.9
1969	194.4	99.1	95.3	55.3	28.5	26.8	75.5	33.7	41.8
1968	183.0	94.5	88.5	55.1	28.4	26.7	77.0	33.3	43.7
1967	178.9	95.5	83.4	54.8	27.8	27.0	73.2	31.1	42.1
1966	185.2	92.4	92.8	55.6	28.3	27.3	75.8	31.6	44.1
1965	186.7	91.9	94.8	53.4	26.6	26.8	70.8	29.2	41.5
1964	208.5	97.3	111.1	52.0	25.7	26.3	68.4	27.5	40.8
1963	172.5	78.0	94.5	50.9	24.3	26.6	68.2	26.5	41.7
1962	176.2	87.6	88.6	49.7	23.1	26.6	66.5	25.2	41.3
1961	188.8	91.5	97.4	48.1	22.1	26.1	63.3	23.9	39.4
1960	186.1	91.9	94.6	49.9	22.5	27.4	67.3	24.4	42.9
1959	197.4	98.3	99.1	49.9	22.8	27.1	66.1	25.0	41.1
1958	172.3	87.4	84.9	49.8	22.5	27.3	66.7	24.7	42.0
1957	185.1	94.9	90.9	53.4	24.1	29.3	71.0	27.3	43.7
1956	195.5	106.2	89.4	54.4	25.2	29.2	72.0	29.5	42.5
1955	184.0	97.6	90.3	54.3	24.6	29.7	71.1	28.1	43.0

[1]Estimated population methodology revised in 1976. Maine, New York and Pennsylvania included as reservation States beginning in 1979.

Source: Indian and Alaska Native—Indian Health Service. U.S. all Races and U.S. Other than White—National Center for Health Statistics, Annual Mortality Publication, Vol. II, Part A (1955–1975) and Annual Advance Mortality Reports (1976–1979) Taken from FY 1984 Budget Appropriation Indian Health Service "Chart Series" Tables Vital Events Branch, Office of Program Statistics, Division of Resource Coordination. Indian Health Service, Rockville, MD, April 1983.

Table 7
Mortality from fires and flames, United States, 1976-77

| | Average Annual Death Rate per 100,000 Population | | | | | | | | |
| Age Group | Total Persons | | | White | | | Nonwhite | | |
	Total	Male	Female	Total	Male	Female	Total	Male	Female
All ages	2.9	3.7	2.2	2.5	3.1	1.9	6.0	7.8	4.6
Under 1	4.9	5.0	4.7	3.4	3.7	3.2	11.8	11.5	12.0
1-4	5.3	5.9	4.6	4.0	4.5	3.5	11.2	12.3	10.0
5-9	2.0	2.2	1.9	1.6	1.7	1.5	4.3	4.6	3.9
10-14	1.1	1.1	1.0	.9	1.0	.9	2.0	2.1	1.9
15-19	1.2	1.4	.9	1.1	1.3	.9	1.6	2.0	1.2
20-24	1.7	2.3	1.1	1.6	2.1	1.0	2.7	3.4	2.1
25-34	1.7	2.5	.9	1.5	2.2	.8	3.4	5.2	1.9
35-44	2.0	2.8	1.2	1.7	2.3	1.1	4.2	6.7	2.2
45-54	2.9	3.9	1.9	2.4	3.1	1.6	6.9	10.4	3.9
55-64	4.1	5.8	2.7	3.5	4.8	2.3	10.4	15.3	6.2
65-74	5.8	8.2	4.0	4.7	6.5	3.3	16.5	23.5	10.8
75 and over	11.6	15.5	9.3	9.6	13.2	7.6	32.6	37.8	29.1

Note: All deaths resulting from conflagraton and other types of fires, except in transportation, are included regardless of the nature
of the injury
Source of basic data: Reports of the Division of Vital Statistics, National Center for Health Statistics. Taken from Metropolitian Life
Insurance Company Statistical Bulletin, October-December 1979. Table 1, p. 5

Table 8
Mortality from fires and flames by age, race, and sex. United States, 1968-69

| | Average Annual Death Rate per 100,000 | | | | | | | | |
| Age Group | Total Persons | | | White | | | Nonwhite | | |
	Total	Male	Female	Total	Male	Female	Total	Male	Female
All ages	3.6	4.4	2.9	2.9	3.6	2.3	8.5	10.1	6.9
Under 1	5.4	5.4	5.4	3.2	3.0	3.3	15.6	16.5	14.8
1-4	5.8	6.3	5.4	3.8	4.2	3.4	15.7	16.3	15.1
5-9	2.3	2.3	2.3	1.7	1.7	1.6	5.7	5.5	5.9
10-14	1.0	1.1	0.8	0.8	0.9	0.7	2.0	2.2	1.9
15-19	0.9	1.0	0.7	0.7	0.9	0.6	1.9	2.2	1.6
20-24	1.3	1.9	0.8	1.1	1.6	0.7	2.7	3.9	1.6
25-34	1.8	2.5	1.1	1.5	2.0	0.9	4.2	6.3	2.3
35-44	2.7	3.7	1.8	2.3	3.0	1.5	6.5	9.5	4.0
45-54	3.9	5.2	2.7	3.4	4.4	2.5	8.4	12.5	4.8
55-64	5.8	7.8	4.0	5.0	6.6	3.6	13.5	19.3	8.4
65-74	8.0	10.3	6.1	6.2	8.1	4.7	29.3	35.6	23.9
75 and over	16.0	20.6	13.0	13.5	18.0	10.4	45.0	46.8	43.7

Note: All deaths resulting from conflagration or ignition burning by fire, except in transportation, are included regardless of the
nature of the injury.
Source of basic data: Reports of the Division of Vital Statistics, National Center for Health Statistics. Taken from Metropolitian Life
Insurance Company Statistical Bulletin, December 1973. Table 1, p. 6

Table 9

Blood lead levels of persons 6 months-74 years, with mean, standard error of the mean, median, and percent distribution, by race and age, United States 1976-80.

Race and age	Estimated population in thousands[1]	Number examined[2]	Mean	Standard error of the mean	Median	Less than 10	10-19	20-29	30-39	40-49	50-59	60-69
						Blood lead level (μg/dl)						
						Percent distribution[4]						
All races[3]												
All ages	203,554	9,933	13.9	0.24	13.0	22.1	62.9	13.0	1.6	0.2	0.1	0.0
6 months-5 years ...	16,862	2,372	16.0	0.42	15.0	12.2	63.3	20.5	3.5	0.3	0.1	0.0
6-17 years	44,964	1,720	12.5	0.30	12.0	27.6	64.8	7.1	0.5	—	—	—
18-74	141,728	5,841	14.2	0.25	13.0	21.2	62.3	14.3	1.8	0.3	0.1	0.0
White												
All ages	174,528	8,369	13.7	0.24	13.0	23.3	62.8	12.2	1.5	0.2	0.1	0.0
6 months-5 years ...	13,641	1,876	14.9	0.43	14.0	14.5	67.5	16.1	1.8	0.1	0.1	0.0
6-17 years	37,530	1,424	12.1	0.30	11.0	30.4	63.4	5.8	0.4	—	—	—
18-74 years	123,357	5,069	14.1	0.25	13.0	21.9	62.3	13.7	1.8	0.3	0.1	0.0
Black												
All ages	23,853	1,332	15.7	0.48	15.0	13.3	63.7	20.0	2.3	0.3	0.2	0.1
6 months-5 years ...	2,584	419	20.9	0.61	20.0	2.5	45.4	39.9	10.2	1.4	0.5	0.1
6-17 years	6,529	263	14.8	0.53	14.0	12.8	70.9	15.6	0.7	—	—	—
18-74 years	14,740	650	15.5	0.54	14.0	14.7	62.9	19.6	2.0	0.4	0.3	0.2

[1]At the midpoint of the survey, March 1, 1978
[2]With lead determinations from blood specimens drawn by venipuncture.
[3]Includes data for races not shown separately.
[4]Numbers may not add to totals due to rounding.
Source: National Center for Health Statistics: Blood lead levels for persons 6 months-74 years of age: United States 1976-80. Advance Data From Vital and Health Statistics, No. 79. DHHS Pub. No. (PHS) 82-1250. Public Health Service, Hyattsville, MD, May 12, 1982. Table 1, p. 6.

Table 10

Homicide deaths and rates[1] per 100,000 population for Indians and Alaska Natives in reservation States and for United States, all races and other than white, 1959-79

Calendar Year	Number		Crude Rates		Age-Adjusted Rates and Their Ratio				
	Indians and Alaska Natives	U.S. All Races	Indians and Alaska Natives	U.S. All Races	Indians and Alaska Natives	United States: All Races	Other than White	Ratio of Indians to: U.S. All Races	U.S. Other Than White
1979	209	22,550			25.5	10.4	36.0	2.5	0.7
1978	218	20,432	22.1	9.4	27.8	9.6	33.4	2.9	0.8
1977	197	19,968	22.3	9.2	26.5	9.6	34.5	2.8	0.8
1976	185	19,554	21.8	9.1	26.6	9.5	36.4	2.8	0.7
1975	185	21,310	23.0	10.0	26.5	10.5	41.1	2.5	0.6
1974	203	21,465	24.4	10.2	30.1	10.8	44.5	2.8	0.7
1973	196	20,465	24.2	9.8	29.6	10.5	44.4	2.8	0.7
1972	159	19,638	22.5	9.4	27.6	10.3	46.6	2.7	0.6
1971	149	18,787	19.9	9.1	26.1	10.0	46.8	2.6	0.6
1970	125	16,848	19.3	8.3	23.8	9.1	41.3	2.6	0.6
1969	132	15,477	18.3	7.7	22.5	8.6	40.5	2.6	0.6
1968	116	14,686	18.1	7.3	22.2	8.2	38.8	2.7	0.6
1967	110	13,425	15.9	6.8	20.3	7.7	36.3	2.6	0.6
1966	79	11,606	15.7	5.9	20.3	6.7	31.9	3.0	0.6
1965	102	10,712	14.7	5.5	19.7	6.3	29.8	3.1	0.7
1964	84	9,814	17.1	5.1	23.6	5.8	27.6	4.1	0.9
1963	85	9,225	16.0	4.9	22.3	5.5	26.6	4.1	0.8
1962	80	9,013	14.8	4.8	21.0	5.5	26.3	3.8	0.8
1961	63	8,578	14.7	4.7	20.9	5.3	24.9	3.9	0.8
1960	80	8,464	13.7	4.7	19.5	5.3	25.8	3.7	0.8
1959	62	8,159	14.5	4.6	20.5	5.1	25.8	4.0	0.8 .

[1]Indian and Alaska Native crude rates are 3-year averages centered in the year specified. All other rates are based on single-year data. Estimated population methodology for the Indian population revised in 1976. Maine, New York and Pennsylvania included as reservation States beginning in 1979. The homicide category was revised to include homicide and legal intervention beginning in 1979, in accordance with the Ninth Revision to the International Classification of Diseases, Clinical Modification.
Source: FY 1984 Budget Appropriation Indian Health Service "Chart Series" Tables. Vital Events Branch, Office of Program Statistics, Division of Resource Coordination Indian Health Service, Rockville, MD, April 1982

Table 11

Number and percent distribution of office visits of black patients and percent distribution of office visits of all patients, by major diagnostic groups and inclusive ICDA codes: United States, 1975-76.

Major diagnostic groups and inclusive ICDA codes[1]	Number of visits of black patients in thousands	Visits by—	
		Black patients	All patients[2]
		Percent distribution	
All visits	90,484	100.0	100.0
Infective and parasitic diseases 000-136	4,410	4.9	4.2
Neoplasms 140-239	1,468	1.6	2.2
Endocrine, nutritional, and metabolic diseases 240-279	4,270	4.7	4.2
Mental disorders 290-315	3,068	3.4	4.2
Diseases of nervous system and sense organs 320-389	4,998	5.5	8.2
Diseases of circulatory system 390-458	9,366	10.4	9.6
Diseases of respiratory system 460-519	14,704	16.3	14.1
Diseases of digestive system 520-577	2,999	3.3	3.3
Diseases of genitourinary system 580-629	6,822	7.5	6.2
Diseases of skin and subcutaneous tissue 680-709	4,445	4.9	5.3
Diseases of musculoskeletal system 710-738	5,271	5.8	5.7
Symptoms and ill-defined conditions 780-796	4,063	4.5	4.7
Accidents, poisonings, and violence 800-999	8,140	9.0	7.3
Special conditions and examinations without sickness Y00-Y13	14,295	15.8	18.1
Other diagnoses[3]	1,365	1.5	1.4
Diagnosis "none" or "unknown"	788	0.9	1.3

[1]Based on *Eighth Revision International Classification of Diseases, Adapted for Use in the United States,* ICDA.
[2]Based on 1,155,900,228 office visits by patients of all races over the 2-year span 1975-76.
[3]Diseases of blood and blood-forming organs; complications of pregnancy, childbirth and the puerperium; congenital anomalies; and certain causes of prenatal morbidity and mortality.
Source: National Center for Health Statistics: Office Visits by Black Patients, National Ambulatory Medical Care Survey: United States, 1975-76. Advance Data from Vital and Health Statistics. No. 50. DHEW Pub. No. (PHS) 79-1250. Public Health Service, Hyattsville, MD, July 23, 1979.

Table 12

Number of discharges for patients discharged from short-stay hospitals, by selected diagnoses (including ICD codes) and race: United States, 1971 and 1980.

	1980*			1971*		
	Total	White	All Other	Total	White	All Other
All Conditions	37,832	28,484	4,879	25,789	22,451	3,338
Injury and violence, Poisonings 800-999	3,593	2,658	473	2,664	2,315	349
Fractures, All Sites 800-829	1,163	882	118	772	693	79
Sprains and Strains of back . . . . (including neck) 846-847	312	223	48	222	202	20
Intracranial Injuries (excluding those with skull fracture) 850-854	295	215	43	229	197	32
Lacerations and open wounds 870-907 (1971) 870-904 (1980)	334	227	70	327	258	69

*Includes inpatients for when sex and color were not stated.
Source: Abstracted and Compiled by CHESS from 1) National Center for Health Statistics: A.L. Ranofsky: Inpatient utilization of short-stay hospitals by diagnosis. Vital and Health Statistics Series 13, No. 16 DHEW Pub. No. (HRA) 75-1767 Public Health Service, Rockville, MD. Government Printing Office, July 1974. Table 2, pp. 30-35. 2) National Center for Health Statistics: B.J. Haupt: Utilization of short-stay hospitals: Annual Summary. Vital and Health Statistics, Series 13, No. 64. DHHS Pub. No. (PHS) 82-1725. Public Health Service. Washington, DC. Government Printing Office, March, 1982. Table 14. p. 35.

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Chapter VII   Mental Health

Overview

There are two major models for conceptualizing mental health problems: a medical model and a social model. The social model would dictate the analysis of data concerning the utilization of nonmedical practitioner and nonmedical institutional data that are not generally available. One such set of data that are available are presented. These data concern inmates in penal institutions and show that blacks, Hispanics, and Native Americans are incarcerated in Federal prisons at rates three times their proportion of the U.S. population, and that blacks are incarcerated in State prisons at rates four times their proportion in the U.S. population.

Because of the paucity of data based on the social model, only data based on the medical model are analyzed in this chapter. Essentially, these data consist of utilization data and data based on diagnostic categories disaggregated by racial/ethnic characteristics.

Patient care episodes for both inpatient and outpatient care increased almost fourfold during the 24-year period from 1955 to 1979. Episodes per 100,000 population increased almost threefold during that period. At the beginning of the period, outpatient visits accounted for only 23 percent of all psychiatric episodes, but by the end of the period, 72 percent of all episodes were handled in an outpatient setting.

In the decade 1970-1980, there was a 24 percent increase in the number of facilities providing mental health care, even though there was a decline in the number of State and county mental hospitals. The biggest increase was among federally funded community mental health centers. Inpatient beds decreased by 47.7 percent in 1970-1980, again underscoring the trend away from the inpatient treatment setting.

In 1970-1980, there was only a 20.2 percent increase in inpatient additions, while outpatient additions increased by almost 130 percent and day treatment additions increased by almost 211 percent.

There are some strong interrelationships between sex, race, and the type of facility utilized. Males utilized State and county mental hospitals by a factor of almost 2 to 1 over women among both whites and nonwhites, while nonwhites utilized that facility type by almost the same 2 to 1 ratio. Private mental hospitals showed a reversal of this pattern. They were used by whites 71 percent more than nonwhites, and by females 27 percent more than males. Outpatient psychiatric services are used more heavily by nonwhites (by about 30 percent) and by females (14 percent by whites, 10 percent for nonwhites).

While male use of non-Federal general hospital psychiatric units was about equal between the two racial groups, nonwhite females used them more (22 percent) than their male counterparts, and white females used them disproportionately even more (36 percent).

Hispanics used all facility types less than would have been expected from their proportion of the population, with the exception of their inpatient use of public general hospitals. The use of outpatient psychiatric services by Hispanics appears to have been on the increase.

Generally, whites were admitted to facilities (both inpatient and outpatient) at later ages than blacks or Hispanics, and females were admitted at later ages than males.

Those using mental health care facilities had an equal or higher educational level than did their racial/ethnic group in general.

The types of disease categories ascribed to patients varied by sex, race, and facility type. Community mental health centers had a higher caseload of alcoholism and childhood disorders, general hospitals had a higher depression caseload, and outpatient psychiatric services had a higher caseload of transient disorders and social maladjustment.

Ten disease categories were analyzed. Using facility utilization as a criterion, alcoholism and drug disorders are predominantly male and nonwhite problems. Depressive disorders are predominantly female and nonwhite. Schizophrenia is predominantly nonwhite; neuroses are predominantly female and white. Personality disorders are predominantly white and slightly male. Childhood disorders are nonwhite and male; and social maladjustment is predominantly nonwhite and female. The other categories did not have as dramatic dominance patterns as those listed above. We discuss nonwhite dominance of schizophrenia, and present justification for viewing disadvantagedness as one factor in the predominance.

American Indian and Native Alaska mental health problems have been severe in a few diagnostic categories. One of these is alcoholism, for which the death rate has been disproportionately high compared with the overall population. This group showed a tremendous decrease in hospital discharge rates for alcoholism in the 11-year period ending in 1982, during which the ratio with the overall U.S. population decreased from 7.08 to 1.67. Suicide rates had undergone some decreases almost to parity by 1965, then increased to over twice the Non-Indian rate in the next 10 years. Homicide rates have remained high.

Blacks, Puerto Ricans, and Mexican-Americans have been over-represented in drug abuse clinic utilization, American Indians and Cubans have been proportionately represented, and whites and Asians have been under-represented. Recent surveys by the Institute for Social Research, University of Michigan, have shown a constant downward trend in drug use among American youths. Marijuana use dropped 10 percent from 1979 to 1983, and from 1982 to 1983 there was a 1 percent drop in LSD and cocaine use, a 14 percent drop in stimulant use, a 2 percent drop in sedative use, and a 2 percent drop in alcohol use.

A. Introduction

When discussing most health problems in this book, we have been able to define health as the absence of disease. It may not seem profound to state that a person is oncologically healthy if he or she does not have cancer. We can accept such a statement because we generally share an understanding of what cancer is, and we generally can detect when a person is in a cancerous state. We could also accept the statement that a person is mentally healthy if he or she lacks psychopathology, but here we run into a problem with both definition and conceptualization.

Neurology is a field of medicine that has witnessed many advances in the 20th century. It has been able to delineate an area of disease and dysfunction of the nervous system that is organically based. What remains is a group of other disorders affecting mental functioning that are believed to be organic (i.e., physiologically based), and another group that at least some theorists and practitioners of psychotherapy have come to believe is functional (i.e., disorders that result from stress or exposure to the vicissitudes of life).

The organic mental diseases are usually believed to be such either because (a) those who have that specific disease also have some physiological characteristics not found in the rest of the population, or not found to the same degree in the rest of the population, or because (b) physical treatments (e.g., electro-shock therapy) and/or pharmaceutical treatments seem to ameliorate the symptoms. The functional disorders are believed to be such because (a) they are not sufficiently ameliorated by physical or pharmaceutical treatments, (b) they respond, at least at times, to psychotherapy or talking treatments, and/or (c) certain stress-producing situations, both in the laboratory and in real-life situations, have resulted in what appear to be similar conditions.

There is not always agreement among theorists and practitioners about the dividing line between organic and functional categories. If the above discussion is not confusing enough, it at least deals with chronic types of disorders, or episodes that last over a period of days. Add to the problem the categories of transient mental conditions (e.g., people with mood swings, people about whom it is said "he's having a bad day," or transient sociopathic [felonious] behavior that sometimes lasts less than an hour in a person who is otherwise relatively mentally healthy) and there are indeed problems in nosology and analysis. These problems are of particular interest in a chapter dealing with the comparative mental health of the disadvantaged, because it is commonly believed that persons within those racial, ethnic, educational, and/or income groups are greatly exposed to the precursor causes of functional mental disorders.

What then is an index of mental health status? If we invoke the medical model, we consider that mental problems are "diseases" or "disorders" that are "treated" or "cured" by doctors in hospitals and clinics. On that model, health status indicators used for other health problems could be useful here, too. That is, we use health care services utilization data and distributions of demographic characteristics by diagnostic categories. If we invoke the social model, then we use tabulations of inmates in mental institutions; we employ the utilization of services of social welfare agencies, crisis centers, and counselling centers; we invoke unemployment rates; we tabulate police interventions in family and public disputes, etc.

The point can best be understood with an example. The table below contains a distribution of Federal and State prison inmates by race/ethnicity. Note that blacks populate Federal prisons approximately three times their proportion in the population; they populate State penal institutions about four times their proportion in the population. Hispanics and Native Americans also populate Federal prisons approximately three times their proportions in the population, but are incarcerated in State institutions by factors about 1.09 and 1.5 their proportion of the population. If mental health diagnostic manuals contain diagnostic categories for various types of behaviors that result in incarceration, then is it not true that these figures on incarceration reflect mental health problems?

We do not try to resolve these issues in this chapter. Note that, except for the prison data referenced above, cited data are related to the medical model, because these data are available, and they are commonly used for such purposes.

The bulk of the data available to use for mental health status indexes are mental health facility utilization data. These data are associated with both ambulatory and resident care. They exclude data concerning those who do not seek care—and there is no reason to believe that persons from racial/ethnic minorities and low income groups are in that category in disproportionate numbers. They also exclude persons receiving care from private practitioners (e.g., psychiatric social workers, psychiatric nurses, and ministers), and those receiving attention in nonreporting institutions, such as schools, churches, social welfare agencies, free clinics, and crisis counselling centers. The groups of concern in our analysis may be disproportionately low among those receiving attention by private practitioners, and disproportionately high among those obtaining services from social welfare agencies.

Distribution of Federal and State prison inmates by race/ethnicity[*]

Type of Penal Inst.	Total Inmate Population	White	Black	Hispanic	Native American	Other
Federal	21,858	13,370	7,981	3.715	384	100
State	282,398	119,173	126,173	18,928	2,322	1147

	Percent Black	Percent Hispanic	Percent Native American
Federal	36.5	17.0	1.76
State	47.2	7.2	0.9

[*]Data provided in correspondence from the American Correctional Association.

The available data sources place a limit on our understanding of the degree to which the mental health problems of minorities and low income groups differ from those of the total population. That limitation is due to the lack of incidence and prevalence data.

One final set of nuances in mental health service utilization must be understood in order to interpret the data presented here. Some diagnostic categories involve periods of remissions or recurrences of acute phases of the morbid conditions. These characteristics require that the onset and termination of each phase be analyzed. Institutional data of phase onset and termination may be affected by factors that are not related to the morbidity itself. With inpatient utilization, for example, prevalence is affected by (a) the number of admissions, (b) lengths of stay, (c) readmissions, (d) releases, and (e) deaths. These factors in turn may be affected by (a) availability of nonresidential facilities in the area, (b) admission and discharge policies of the institution, (c) staffing patterns, (d) delay in assignment to treatment programs, (e) availability of an appropriate setting for the patients released, and (f) the criteria employed for determining recovery. Thus the measures employed for describing health status also can reflect administrative and medical management styles of the facilities.

Determining prevalence of a mental disease is no more problematic than determining the *incidence* of the disease. Incidence rates require establishing *when* the mental health problem began. Thus they rely on data from the patient, members of the family, or another person's knowledge of the patient's life. One of the common methods uses the first admission to a psychiatric facility as the date of onset of the mental health problem. Using the first admission is generally now recognized as a very weak measure of incidence. Rates of admission will vary from time to time and from place to place, as a function of the institution, as a function of help-seeking behaviors, and of the many types and changes in the care and treatment of the mentally ill. For example, at one time, those seeking psychiatric treatment consisted mostly of the incapacitated. Now psychiatric help is sought for many lesser mental health problems. Also, most psychiatric care was previously rendered in inpatient settings in public institutions. Now a much larger amount of mental health care is rendered in outpatient settings and in noninstitutional settings.

There have been recent attempts to use an epidemiological approach for gathering mental health incidence and prevalence data searching etiological correlates. There are no published tools as yet, but the approach promises to mitigate some of the limitations in the types of mental health data discussed above (1, p. 319; 2, p. 381).

Additional caveats on the interpretation of the data presented are contained in *Chapter I* of this book.

B. Some Limitations in Making Cross-Group Comparisons

Before comparing the accessibility and utilization of mental health services between the poor and nonpoor and the white and nonwhite populations, some sociodemographic factors must be taken into consideration; for example, the pattern of institutionalization by different social classes. Types of behavior that are considered to be psychiatrically abnormal by one socioeconomic or ethnic group are not always considered abnormal by members of another. Additionally, there seems to be some evidence that blacks and whites are differentially diagnosed for similar behavioral problems. For example, Cannon and Locke report studies that show whites are more likely to be diagnosed with depressive disorders, while blacks and other nonwhites are more likely to be diagnosed as schizophrenic. They hypothesize that this tendency to diagnose blacks as schizophrenic more frequently than whites may be due to differences in the quality of communication between black patients and their white psychiatrists, in comparison to the communications of white patients with white psychiatrists. This tendency could also be a reflection of the diagnostic habits of psychiatrists. Cannon and Locke go on to report a study by Raskin which observed that, when age and social class were controlled, blacks had a more rapid onset of symptoms, received less psychoactive medication, and probably received less psychiatric treatment prior to hospitalization than did their white counterparts.

Cannon and Locke also report the findings of Simon's study, conducted in nine State psychiatric hospitals serving New York City and surrounding areas. The basic outcome of the study was that a diagnosis of schizophrenia, rather than depression, was given more frequently to blacks than whites by hospital personnel. Simon states that black behavior patterns baffle most middle-class-oriented mental health professionals, and will continue to do so until blacks are viewed as a culturally distinct group, with unique values and coping mechanisms. Black depressives have a different quality of mental disturbance than do white depressives.

According to Cannon and Locke's investigations:

Those patients who are classified as clinic or facilities, are generally felt to receive treatment inferior to that received by patients who are more affluent and receive treatment in private facilities. The poor and disadvantaged, usually Black, are more likely to be assigned to 15 minute clinics as opposed to longer term therapy. They are also more likely to be seen by inexperienced therapists, and given drug therapy with minimal psychiatric support treatment (3).

Rosen touches only briefly on differential diagnostic patterns, but notes that the available data have documented the findings of many community studies showing that the lower socioeconomic classes tend to receive diagnoses of more serious disorders (4).

C. Utilization of Psychiatric Facilities

Patient care episodes are defined as the number of patients on the roll of a facility at the beginning of the year, plus the total additions to the facility during the year. Total

additions during the year include new admissions, readmissions, and returns from long-term leave. There are, therefore, duplicated counts of individual patients.

Total patient care episodes, which include both hospitalized mental patients and ambulatory mental patients, increased almost fourfold from 1955 to 1979, while episodes per 100,000 population increased almost threefold. The bulk of the increase was in outpatient facility settings. In 1955, outpatient visits accounted for only 23 percent of all psychiatric episodes; by 1979, the figure was 72 percent.

In the decade 1970-1980, there was a 24.0 percent increase in the number of facilities providing mental health care. State and county mental hospitals and freestanding psychiatric outpatient clinics were the only types of facilities posting declines (9.7 and 5.0 percent fewer, respectively). The remaining facility types all posted increases in the number of facilities: private psychiatric hospitals (22.7 percent), non-Federal general hospitals with psychiatric services (15.8 percent), Veteran's Administration (VA) psychiatric services (18.3 percent), federally funded community mental health centers (252.6 percent), residential treatment centers for emotionally disturbed children (41.0 percent), and all other facilities (37.3 percent).

There are three modes of service with respect to residence: inpatient services, under which the patient resides within the facility; outpatient services, under which the patient visits the facility only for purposes of diagnosis and/or treatment; and day treatment, under

which the patient spends almost all days at the facility but leaves to spend the night elsewhere. The numbers of facilities offering each of these service modes, and the changes in those numbers in 1970-1980, can be found in Table 1.

In 1970-1980, the number of inpatient beds decreased by 47.7 percent, with 62.6 percent of the decrease occurring within State and county mental hospitals. These statistics reflect both the trend of decreased use of State and county mental hospitals and the trend away from inpatient services.

The trend away from State and county mental hospitals invites further inspection, since they are facilities that treat a disproportionately large number of minority and low income patients.

During 1969-1979, there was a 20.2 percent increase in inpatient additions, a 129.8 percent increase in outpatient additions, and a 210.6 percent increase in day treatment additions in all reporting institutions. As can be seen in Table 2, the largest contribution to inpatient additions came from federally funded community mental health centers, although substantial contributions came from non-Federal general hospital psychiatric services, Veteran's Administration psychiatric services, and private psychiatric hospitals. State and county mental hospitals posted a 21.2 percent drop in inpatient additions during this time. Most of the outpatient additions came from federally funded community mental health centers, although free-standing psychiatric outpatient clinics also made a substantial contribution to this sharp rise. Most of the day treatment additions were due to increased utilization of federally funded

community mental health centers.

The changes noted above are of interest in a comparative analysis of minorities and low income groups because of the way these groups use these facilities relative to the rest of the population.

Since 1955, there has been an uninterrupted decrease in the number of resident patients in State and county mental hospitals. By 1980, the 25-year decline resulted in a 75 percent reduction of resident State and county mental hospital patients, even though admissions to such facilities continued to grow by a factor of 2.26 from 1955 to 1971. Starting in 1972, there was a decline of 6.5 percent over the next 4 years. The 30-year history can be found in Table 3.

The first year of the decline of resident State and county mental hospital patients, 1956, coincided with the large-scale introduction of psychotropic drugs. In the early 1960's, other factors were significant in reducing the resident populations. These factors included more efficient admission and discharge procedures, more effective utilization review procedures, increases in the availability and use of alternative resources in the community, a gradual reduction in the residential average length of stay, and the general adoption of a deinstitutionalization philosophy. The community mental health center became an increasingly significant resource, both in the number of patients it served and in the number of facilities in existence.

Table 4 lists a breakdown of the 1,180,000 additions to federally funded community mental health centers in

1978. From the listing in this table it can be seen that (a) nonwhites used such facilities almost proportionally to their numbers in the general population, (b) males and females used these facilities almost equally, (c) the age distribution of the patients of these facilities were quite parallel between the racial groups and within each sex group, and (d) males tended to use these facilities at earlier ages than did females (which was also true of utilization patterns of other types of psychiatric facilities).

Additional facility utilization characteristics can be seen in Table 5. It is difficult to analyze all facilities by a single measure, since they tend to report differently. State and county mental hospitals, private mental hospitals, and outpatient psychiatric services reported admissions to their facilities; Veteran's Administration hospital psychiatric inpatient units and non-Federal general hospital psychiatric inpatient units reported discharges; community mental health centers reported additions.

Table 5 reports the most recent published data that include racial breakdowns by facility type. Some of the race/sex utilization trends discernible from Table 5 are: a) In State and county hospitals, male utilization outnumbered female utilization 1.95 to 1. This was true in both racial groups. The male-to-female utilization ratio for whites was 1.93, and the male-to-female ratio for nonwhites was 2.10. b) Racially, nonwhites used such facilities almost exactly twice as much as did whites. The reverse was true of private mental hospitals, where the ratio of white-to-nonwhite utilization was 1.71. Among whites, females uti-

lized such facilities 27 percent more than males did, but there was no similar sexual disparity among nonwhites.

Outpatient psychiatric services were used by nonwhites 1⅓ times the rate used by whites. There was a slightly heavier usage of these facilities by females, about 14 percent greater female usage than male usage among whites, a 10 percent greater usage by females than males among nonwhites.

It is very difficult to make any meaningful comparisons of VA hospital usage among the various racial and sexual subgroups because of the nature of the population eligible to receive treatment in such facilities. Such facilities get minimal usage by females, but exposure risk rates for females in this subpopulation may also be minimal. These risk rates have not been reported in the literature. Also, because such institutions can have patients with short to fairly prolonged times from military discharge until entry, it is difficult to describe the population at risk.

The non-Federal general hospitals that have psychiatric inpatient units showed a use by females 36 percent greater than by males among whites, and 22 percent greater among nonwhites. The male utilization rates were approximately equal between the two race groups. White females showed an 11 percent greater use than did nonwhite females.

Table 4 contains a distribution of the additions to federally funded community mental health centers (CMHC) in 1978. Approximately 20 percent of CMHC use was by nonwhites. There was a slight difference in sex-

ual usage within races. Nonwhite females had a 5 percent lower usage rate than nonwhite males, whereas white females had a 5 percent higher usage rate than white males.

Table 6 contains a comparison between Hispanics and the total population with regard to mental health facility use. From these data, it is obvious that Hispanics use mental health facilities at rates lower than their proportion of the population, with the exception of their inpatient use of public general hospitals; the usage rate of this type of facility was quite high. Both State and county mental hospitals and nonpublic, non-Federal general hospitals actually had more admissions from this population subgroup, but the rate in comparison to non-Hispanic use was lower.

Also observable in Table 6 is the increased use of outpatient psychiatric services by Hispanics. This usage rate represents only about two-thirds of what would be expected proportionally; however, it appears that this form of care has received some acceptance from Hispanics. Its acceptance will probably increase in coming years, if the stigma of institutionalization was the cause of the lower usage rates.

Table 7 presents admission rates related to a population base and then age adjusted. Comparisons among the three groups (white, black, and Hispanic) indicate that blacks have an extremely high usage rate of State and county mental hospitals and that blacks, as well as Hispanics, have a very high usage rate of public non-Federal general hospitals. This is the only facility usage rate higher for Hispanics than for whites. Also note that blacks have a

higher utilization rate of outpatient psychiatric services than do whites or Hispanics.

The breakdown in Table 7 by sexual subgroups shows heavy use of outpatient psychiatric services for both sexes among blacks. Black males, however, use private mental hospitals more than do black females, even though both sexes use this facility proportionately less than whites. Utilization of public non-Federal hospitals is higher for both sexes among blacks than it is for whites, although the use is heavier for black males than black females. Finally, although nonpublic Federal general hospitals are used at a higher rate by black males than by white males, they are used less frequently by black females than white females.

Again, the only heavy use of a facility noted for Hispanics was the public Federal general hospitals. Such usage rates are higher for male Hispanics than they are for females. Hispanic males utilize State and county mental hospitals proportionally about the same as whites, but Hispanic females use these facilities about half as much as white females do.

In Table 8, age distributions indicate differences between the various ethnic groups in their facility utilization. Although females across the three ethnic groups are admitted to outpatient psychiatric facilities at roughly the same median age, males are admitted approximately 6 years earlier than females in both the white and Hispanic groups, while black males are admitted about 13 years earlier than black females. To all other facility types, whites are admitted at later ages (the medians for whites are in the mid-thirties) than are blacks and Hispanics (high

twenties). In comparing sexual subgroups in these other facilities, males are again admitted earlier than females. White males are admitted to all other facilities in their early to mid-thirties, and blacks, and Hispanics in their late twenties. White females are admitted in their late thirties, black and Hispanic females in their very late twenties and early thirties. The only major deviation from this pattern is that black females are admitted to State and county hospitals in their late thirties (an age comparable to white females).

Table 9 demonstrates the effect of educational level on facility use. For each institutional type, admitted whites have a higher average education than do the other groups, who do not markedly differ from each other. Also note, with respect to all types of facilities, that those using mental facilities have an equal or higher educational level than do their ethnic groups in general (with blacks and whites in State and county hospitals being the only exception). Those using private mental hospitals have the highest educational levels of all ethnic group facility type combinations.

D. Diagnostic Categorization

The question that now arises is, "When mental health facilities are used by various ethnic groups, what are they used for?" For this analysis our attention will be limited to three major facility types: non-Federal general hospitals, outpatient psychiatric services, and community mental health centers. Our main intent is to compare white and nonwhite utilization by diagnosis, not to compare the facility types.

The 10 disease categories by which the data have been classified can be found as row titles in Table 10. Note that the diagnostic categories are those generally used most frequently by all facility types. There do appear to be some interactions between diagnostic categories and facility type, however.

We first note that a larger portion of the community mental health center caseload is involved with alcohol disorders than is true of the other facility types. Second, depressive disorders occupy a tremendous proportion of the general hospital caseload in comparison to the other two facilities. The same thing is true of schizophrenia. Third, those conditions classified as transient disorders and social maladjustment occupy a greater proportion of the caseload of outpatient psychiatric services than of the other two facility types. Finally, childhood disorders occupy a larger portion of the caseload of community mental health centers and of outpatient psychiatric services than general hospitals.

Table 11 presents a series of ratios which help to clarify the diagnostic categories most often ascribed to the four racial/sexual groups. By using the word "ascribed," we are intentionally circumventing the question of the accuracy of the diagnoses applied to mental patients.

Nonwhites have the highest usage of outpatient psychiatric services and community mental health centers. This is not the case in non-Federal general hospitals, where the disparity between the racial groups is slightly in the opposite direction.

The first disease category, alcohol disorders, is a male-dominated disease. Alcohol disorder rates are three to four times higher for males than for females, although that ratio drops down to two to three times more males than females in general hospitals. In comparing the two racial groups, note that this category is used more by nonwhites, except in non-Federal general hospital discharges. Comparing nonwhite males to white males and nonwhite females to white females, we find once again that it is a condition for which nonwhites are diagnosed at higher rates than are whites in both sex groups, with the exception of males in general hospitals.

Missing data make it difficult to complete full analysis of drug disorders. Generally speaking, it is a male-dominated disease and it is also a nonwhite disease, with outpatient psychiatric service ascription of that diagnosis for nonwhite males almost seven times that for white males and over eight times that for white females.

With respect to organic brain syndromes, we note that non-Federal general hospitals are used consistently less frequently for this diagnostic category by nonwhites than by whites. This is also a category in which males appear to dominate ascription, but the differential between the sexes is slight. It is, however, also more of an ethnic minority disease category in those patients seen by outpatient psychiatric and community mental health centers.

Depressive disorders is a female dominated mental health category. It is also a category in which services are used less frequently by nonwhite males than by white males. Among females,

however, it appears that nonwhites have a greater utilization rate, at least in outpatient psychiatric services and community mental health centers.

The literature is replete with discussions of how schizophrenia is a nonwhite disease. In particular, it is a diagnostic category that is ascribed at very high rates to blacks. This disease category particularly seems to be one whose nonwhite victims gravitate to community mental health centers. At this facility type, all of the nonwhite ratios of the various race/sex comparisons are over two. The nonwhite female ratios are also over two at outpatient psychiatric clinics.

Neuroses are a female- and white-dominated diagnostic category. The only comparison for which the ratios are higher for nonwhites is the nonwhite female to white male comparison, which appears to show the sexual domination rather than the ethnic one.

Personality disorders is a category ascribed more often to white facility users than to nonwhites, and it also appears to be one in which there is a bit of male dominance. The male dominance appears to be stronger among nonwhites than among whites where the dominance is marginal.

Although transient disorders seem to be ascribed more often to nonwhites than whites, there are not the strong differences associated with some other diagnostic categories. Conditions in this category seem to be more frequently ascribed to females than to males.

Childhood disorders also appear to be something of a nonwhite diagnostic category, with most of the ratios in this table being above, and sometimes substantially

above, one. It also appears to be male dominated.

Finally, social maladjustment appears to be a non-white and female-dominated ascription, but further analysis shows that the heavy non-white female ascription masks the fact the nonwhite male ascription lags behind that of white males. Again, the ratios do not reach the high peaks that they do with some of the other diagnostic categories.

Table 10 shows that depressive disorders and schizophrenia are the two most frequently used categories at all three facility types. Nonwhite female utilization seems to dominate in both of these diagnostic categories.

Both nonwhite sexes have schizophrenia ascribed to them with much greater frequency than their numbers in the population would imply. A tremendous amount of health system literature examines why this is the case. In 1982, the Institute of Medicine of the National Academy of Sciences conducted a conference on behavior, health risks, and social disadvantage. The mental health section of the Conference Report contained a number of papers devoted to the apparent high utilization of this diagnostic category with respect to blacks and other minorities (5).

The papers' explanations for the higher ascription of this diagnostic category to nonwhites are multiple. First, it is argued that schizophrenia is a multiple disease category, and by using one word to describe all those diseases, we are glossing over some of the real differences between racial groups. Second, the phenomenon is attributed to the larger amounts of stress encountered by ethnic

minorities. A third explanation is that schizophrenia is related to birth injuries due to poor prenatal care. Other explanations attribute the phenomenon to: greater incidence of malnutrition among nonwhites; infection; greater prenatal maternal stress; and biased diagnoses. This latter rationale has received considerable attention, as reported earlier in this chapter.

Strass, however, points out that schizophrenia is really a disease category of the lower social classes, and that racially disadvantaged groups get the disease by virtue of their social class rather than their racial group. He points out:

> Almost without exception, epidemiologic studies show that schizophrenia has a higher incidence and prevalence rate in the lower social classes. Furthermore, the pattern of increase in the lower social classes may shift with community size. The larger the community, the more marked the increase of schizophrenia in the lowest social classes appears to be.

Later in the paper, he states his rationale:

> There is a greater frequency of stresses in the social classes that may contribute. Persons from lower social classes may have more limited coping mechanisms because of restricted options available to them for dealing with complex and difficult life situations. And there are fewer treatment resources for the lowest social classes. Hollingshead and Redlich, as well as others, have showed the relative lack of treatment facilities for the lower classes. Those limitations, perhaps somewhat ameliorated, still continue (6).

M. Harvey Brenner, an economist, has done a series of statistical analyses on economic patterns and their relationship to various disease categories. He states that:

> . . .multiple regression time series equations were developed which expressed the joint influence of economic growth, recessions (measured by the unemployment rate), and inflation on national mortality rates (total mortality by age, sex, and race, cardiovascular mortality, cirrhosis of the liver, suicide, homicide), mental hospitalization and imprisonment. In nearly all cases it was found that long term economic growth showed a highly beneficial effect, while recession increased all of these sources of mortality and psychopathology within a five year distributed lag period (7).

Figure 1 shows Brenner's analysis of the relationship between changes in the suicide rate and changes in the unemployment rate in the United States between 1905 and 1976. It is very difficult to ignore the high relationship that is demonstrated. It is also hard to ignore Brenner's assertion that this type of analysis has not only been duplicated at national, State, and city levels in the United States, but also in other western industrialized countries.

Kramer applies statistical analysis. He asserts that the problems are much worse than they appear because of the shorter life span or higher mortality rates of nonwhites. He argues that if these kinds of differentials of life span (and therefore greater exposure to disease) are taken into account, the racial differentials in schizophrenia are really much larger than they appear to be (8).

Figure 1

Graphic analysis of the relation between the changes* in the suicide rate and changes* in the unemployment rate, United States, 1905–1976
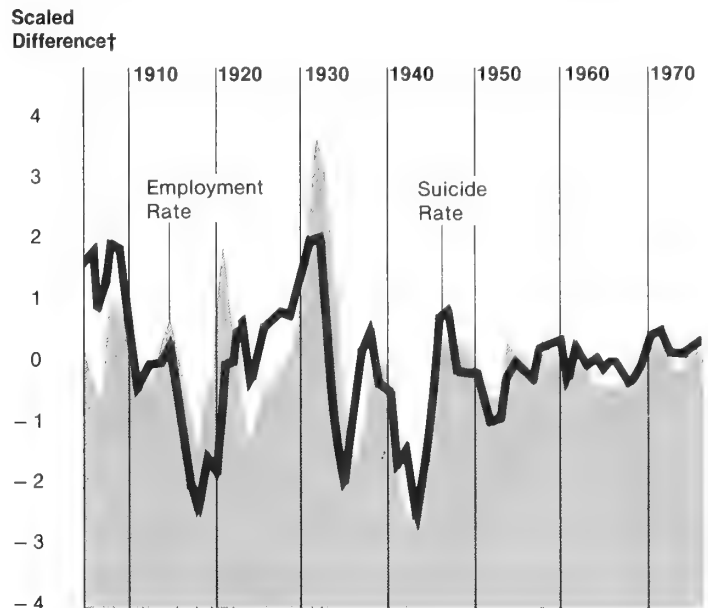
*Changes: Three-year arithmetic differences

†Scaled Difference: Both series are scaled for viewing such that the greatest amplitude from the arithmetic mean of each series, which is set equal to zero, has been normalized to within the range of + 4.00 if positive, or − 4.00 if negative.

Source: M. Harvey Brenner, Ph.D., Mental Illness and the Economy. *In Behavior, Health Risks, and Social Disadvantage.* National Academy Press, 1982.

Thus, on the one hand are the social apologists who argue that the racial differentials in schizophrenia incidence come from biased diagnoses, and on the other hand are the statistical apologists who relate the elevated incidence and prevalence rates of schizophrenia to social and economic factors. Perhaps the determination of which of these positions is correct requires considerable additional study. This point of view was summarized by Williams, who states:

> In a series of community wide studies of psychological distress published in the 1970's by Warheit, Ilfeld, Comstock, and Quesada, the authors found no relationship between race and mental illness that was not explained by

socioeconomic status. However, socioeconomic status explains no more than 14 percent of the variance in those Afro-American populations that were studied. While more unbiased than previous studies, the literature suggests that responses to community-wide surveys is again influenced by class, race, and sex of the respondent and interviewer. Clearly the accurate measurement of psychological distress in minority and disadvantaged populations has yet to be achieved. This is particularly true of the measurement of psychological distress in minority male populations (9).

E. Mental Disorders among Native Americans

Mental disorders are a major and growing cause for hospitalizations in Indian Health Service Hospitals and that Service's contract hospitals. Table 12 presents the total number of discharges and total hospital days due to mental disorders for fiscal years 1967 through 1972. In 1967, mental disorders were the ninth leading cause of hospitalizations. From 1967 to 1972, however, the number of discharges in the mental disorder category nearly doubled, and by 1972, this category ranked sixth. Hospital days associated with mental disorders also more than doubled during this period.

Table 13 lists the 15 leading causes of outpatient visits by diagnostic classification for the Indian Health Service's facilities. In 1976, mental disorders constituted 2 percent and were the 14th leading reason for outpatient visits. Table 14 lists the 10 leading causes for inpatient care in Indian Health Service contract hospitals in the same year. In the 4 years since the tabulation reported in Table 12, mental disorders have moved up to the fifth most frequent cause for hospitalization, constituting a little over 6.5 percent of all hospitalizations. At this rate of growth they could very well soon become the fourth leading cause of hospitalization, if this has not happened already. Data do not appear to be available which break down all of the causes.

The Indian Health Service discharge summary for 1967 to 1972 has indicated that the upward trend in the number of patients hospitalized with mental disorders reflects the attempts of the Indian Health Service to deal with mental health problems in this population. This increased mental health service to the Indian and Alaska Native population has been facilitated by the change in their attitude towards mental disorders, including alcoholism. Native Americans have become less resistant to seeking outside help for mental problems and disorders.

Alcoholism is one of the most serious health problems facing the Indian people. The death rate from alcoholism for Indians and Alaska Natives during the past few years has ranged from 4.3 to 5.5 times that in the United States for all races. Alcoholism death rates for Indians and Alaska Natives are given in Table 15. The death rate from alcoholism has more than doubled from 1966 to 1975, although there appear to be only some minor variations in the death rate from alcoholic psychosis. From the beginning to the end of this time period, there has been a 32 percent increase in deaths from cirrhosis of the liver with mention of alcoholism. In 1975, the alcoholism death rate declined slightly below the rates experienced in 1973 and 1974. This probably reflected the beginning of a trend. From the following data, we can see that in the 11-year period from 1971 to 1982, discharge rates for alcoholism almost halved among the Indians and Alaska Natives. The differential with the total U.S. popula-tion dropped drastically from 7.08 to 1.67.

Table 16 contains data breakdowns by diagnostic category of Indian Health Service hospitalizations from 1967 to 1972. Although over this 6-year period the most striking pattern was the 11 percent increase in hospitalizations with diagnoses of alcoholism and drug dependence, the other changes could have been due to the constraints of the degrees of freedom in using percentages (that is, there is only 100 percent to distribute among the categories, and if one category experiences an increased percentage, other categories of necessity must end up with decreased percentages, even though their *rates* may not have changed).

The following text table shows data that compare rates for the end of that 6-year period with a recent year. Note that alcoholism discharge rates over the 9-year period for all U.S. races "U.S. All Races CY 1971" compared with "U.S. Short-Stay CY 1980" more than doubled, while over the 11-year period 1971 to 1982 the Indian and Alaska Native rates almost halved. The latter effect is probably due to the efforts of the Indian Health Service to deal with this problem. To the extent that these data are valid for comparative uses of this sort, the American Native to "All U.S. Races" ratio decreased from 7.08 to 1.67 over this period. Note also the 11.3 percent decrease in discharges for nonorganic psychoses, and the 71.0 percent decrease in discharges for neuroses and personality disorders.

The other outstanding trend appears to be related to sex. There has been an increase of approximately 30 percent in the male-to-female sex ratio in admissions over the 6 years from 1967 to 1972. Almost all of this apparent increase seems to be related to the alcoholism category. By 1972, males outnumbered females in such admissions by 3 to 1.

Two other mental health statistics can be used to arrive at some index of the mental health problems associated with Native Americans: deaths from suicide and deaths from homicide. Tabulations of relevant data can be found in Tables 17 and 18, respectively. In the 17-year period from 1959 to 1975, there has been a change in the ratio of Indian to non-Indian suicides. The ratio decreased somewhat from 1959 to 1965, at which time there was almost a parity between the two ethnic groups, but a return to the high rate started in 1966 and continued through 1975, at which time the ratio went above 2 to 1.

Number of discharges and discharge rate[1] for mental disorders, Indians and Alaska Natives and U.S. All Races.

	IHS & Contract FY 1982		U.S. Short-Stay CY 1980		IHS & Contract FY 1971		U.S. All Races CY 1971	
	Number	Rate	Number (1,000s)	Rate	Number	Rate	Number (1,000s)	Rate
Total	4,954	63.1	1,692	75.8	5,310	115.4	1,050	51.9
Alcoholism	3,194	40.7	543	24.3	3,386	73.6	210	10.4
Psychoses (non-organic)	496	6.3	393	17.6	329	7.1	220	10.9
Neuroses and personality disorders	509	6.5	335	15.0	1,030	22.4	405	20.0
All other	755	9.6	421	18.9	565	12.3	215	10.6

[1]*Number of discharges per 10,000 population*

Source: IHS and Contract General Hospitals: Annual Reports 2C and 31. U.S. Short-stay Hospitals: National Center for Health Statistics, DHHS unpublished data. In FY 1984 Budget Appropriation. Indian Health Service 'chart series' tables. Office of Program Statistics, Division of Resource Coordination, Indian Health Service, Rockville, MD. April 1983.

There was a similar decline in homicide deaths, starting precipitously in 1965, when the ratio went down from 4 to 1 to 3 to 1 (Indian to non-Indian). The rate then continued to decline for the next 2 years but seems to show only minor nondirectional variations through the rest of the period. The most recent data indicate that a modest decline may still be taking place.

F. Drug Abuse

With respect to health status, drug use is extremely difficult to analyze. On the one hand, there is reason to believe that a very large amount of "unauthorized" use of licit drugs occurs in this country. (By "drug" we mean any substance that has a pharmacological effect, and by "unauthorized" we mean that a health care professional did not suggest, advise, or prescribe the substance as a regimen of therapy.) On the other hand, there is also reason to believe that a large amount of use of illicit drugs occurs.

Two questions need to be answered before we can analyze this problem: (a) At what point does substance *use* become substance *abuse*? (b) With which substances should we be concerned? The answer most frequently given to the latter question seems to focus on addictive drugs (with the exception of nicotine), but since our interest is in health status, we should not limit our attention to such a definition. Some of the mostly widely used/abused drugs that may be having some effect on health status (e.g., Valium, Darvon, Percodan, Elavil, Melaril) do not get the attention that the illegal drugs do, and thus there are insufficient data available to characterize abusage patterns. Regrettably, we are forced to limit our analytic attention to *illegal, addictive* drugs. But even here we are limited to those persons who use/abuse these drugs such that they present themselves for treatment at some health care facility. We have reason to know that the use/abuse of these drugs far outpaces whatever amount is brought to the attention of the health care delivery system. (This is particularly true of marijuana and cocaine, which in many quarters are socially if not legally sanctioned.)

As to delineation between use and abuse, we are equally impeded in our analysis. Were we to define abuse as occurring when the effects of a single administration or a pattern of usage lead to health problems, we would again be limited in our analysis because abuse at this level is not measured. We must understand, therefore, that the following discussion is very limited, since it considers only illegal drugs and only usage levels that require treatment.

The proportions of patients receiving drug abuse treatment services in 1976 at reporting clinics are presented in Figure 2, broken down by the racial/ethnic groups that are tallied separately. Also presented are comparative proportions of the representation of those groups in the general population. From that figure, it can be seen that black, Puerto Rican, and Mexican-American groups are over-represented among the clinic clients, American Indians and Cubans are represented proportionally to their numbers in the population, and the white and Asian groups are under-represented.

The predominant drug problem for clients under 18 years of age was marijuana. With respect to ethnic/racial groups, white clients were less likely to be opiate abusers than black or Hispanic clients, regardless of sex. For white, Hispanic, and black clients, the mean ages of first use of a primary drug were 18.7, 18.1 and 20.9 years. Black clients were less likely than either Hispanic or white clients to seek treatment during the first 3 years of continuing use of their primary drug. The time interval between the first use and first continuing use of a primary drug was less than 1 year for 58.9 percent of all clients. Table 19 presents a breakdown of drug clinic utilization for 1975 and the first two quarters of 1976. Utilization rates for "Other" seem to be relatively constant, the rates for whites seem to be decreasing, while the rates for blacks and Hispanics seem to be on the rise (see the discussion on degrees of freedom, above, related to the entries in Table 16).

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Drug clinic utilization during the same six-quarter period in 1975 and 1976 has been disaggregated in Table 20 by the four main drug groups used by clinic patients. The overall trend in total clients is for increased utilization from opiate abusers and decreased utilization from marijuana abusers. The number of clients using barbiturates and amphetamines was relatively constant. The relative proportion of black opiate abusers was about four times their proportion in the general population, but their proportion in the abusing population appears to have been on a slight downward trend. Hispanic opiate abusers used the clinics in increasing proportions, even though their rate was already almost three times their proportion in the general population.

Marijuana abuse patterns do not seem to have been very dynamic, and the clinic usage patterns show blacks with rates about one and a half, and Hispanics with rates about twice their representation in the general population.

The racial/ethnic groups use clinic services for barbiturates and amphetamines in almost the exact proportions they represent in the general population. There does seem to be an upward trend for Hispanics using clinics for both of these drugs, and a similar upward trend for blacks using amphetamines. The decreasing proportion of white usage for both of these drugs represented a real decrease, and not just an offset, since use of these drugs was at least stable and probably slightly increasing.

Figure 2

Utilization of federally funded drug abuse clinics by Racial/Ethnic Group.

Percent Drug Clinic Clients

Approximate Percent in Population

*Includes: Central American, South American and Other Hispanics

Source: National Institute of Drug Abuse—Clinic Oriented Data Acquisition Project, 1976

Although we have already observed that the rates of abuse are not necessarily reflected in clinical services utilization, the rates may be an accurate indication of the actual patterns of drug abuse by drug and racial/ethnic categories.

As indicated previously, drug abuse starts early in life. It may be possible to predict future trends by examining usage rates of youths. To this end, the Institute for Social Research of the University of Michigan has been measuring high school seniors' drug abuse rates in 16,000 to 17,000 students across the Nation during the last 5 years. They have detected a constant downward trend. From 1979 to 1983, they noted a 10 percent reduction, from 37 to 27 percent, of those who had used marijuana during the month prior to the survey. Daily users dropped from 10.3 percent to 5.5 percent during the same period.

During 1982 and 1983, they also measured the following decreases in self-reported drug abuse: LSD dropped from 3 to 2 percent; cocaine dropped from 6 to 5 percent; stimulants from 16 to 12 percent; and sedatives from 5 to 3 percent.

The proportion of seniors who had taken five or more drinks in a row during the 2 weeks prior to the survey remained at 41 percent during 1982-1983, although those who had used liquor in any way in the previous month dropped from 71 to 69 percent in the 1982-1983 comparisons, and daily users dropped from 6 to 5.5 percent. It appears that the current adolescent generation may not be getting "turned on" by the use of alcohol and drugs at the same rates as the immediately preceding generation. But when they do use alcohol, they appear to be using it in excess (10, p. 3).

Table 1

Mental health services by service mode, 1970-80.

Type of services	1970	1972	1974	1976	1978	1980	Percent Increase During Period
All facilities	3,005	3,187	3,315	3,480	3,738	3,727	24.0
Inpatient services	1,734	1,913	2,060	2,273	2,421	2,526	45.7
Outpatient services	2,156	2,271	2,219	2,318	2,429	2,431	12.8
Day treatment	778	981	1,281	1,447	1,571	1,648	111.8

Table 2

Number of inpatient additions, outpatient additions, and day treatment additions by type of mental health facility: United States, selected years, 1969-79.

Type of facility	1969	1971	1973	1975	1977	1979
	Number of inpatient additions					
All facilities	1,282,698	1,336,418	1,415,012	1,556,978	1,584,672	1,541,659
State and county mental hospitals .	486,661	474,923	442,530	433,529	414,703	383,323
Private psychiatric hospitals	92,056	87,106	109,516	125,529	138,151	140,831
Non-Federal general hospital psychiatric services	478,000	519,926	468,415	543,731	551,190	551,190
V.A. psychiatric services	135,217	134,065	169,106	180,701	180,416	180,416
Federally funded community mental health centers	59,730	75,900	183,026	236,226	257,347	246,409
Residential treatment centers for emotionally disturbed children . . .	7,596	11,148	12,179	12,022	15,152	15,453
All other facilities	23,438	33,350	30,240	25,240	27,713	24,037
	Number of outpatient additions					
All facilities	1,146,612	1,378,822	1,714,030	2,289,779	2,343,360	2,634,727
State and county mental hospitals .	164,232	129,133	167,647	146,078	107,692	81,919
Private psychiatric hospitals	25,540	18,250	31,656	32,879	33,573	30,004
Non-Federal general hospital psychiatric services	170,558	282,677	238,208	254,665	224,284	224,284
V.A. psychiatric services	16,790	51,645	68,016	93,935	120,243	120,243
Federally funded community mental health centers	176,659	335,648	486,585	784,638	876,121	1,222,305
Residential treatment centers for emotionally disturbed children . . .	7,920	10,156	10,993	19,784	18,155	19,653
Freestanding psychiatric outpatient clinics	538,426	484,677	650,034	870,649	861,411	825,046
All other facilities	46,487	66,636	60,891	87,151	101,881	111,273
	Number of day treatment additions					
All facilities	55,486	75,545	128,949	163,326	170,591	172,331
State and county mental hospitals .	10,505	16,554	16,793	14,205	10,697	9,808
Private psychiatric hospitals	2,872	1,894	2,920	3,165	3,842	3,467
Non-Federal general hospital psychiatric services	18,094	11,563	18,772	14,216	12,724	12,724
V.A. psychiatric services	3,500	4,023	7,049	7,788	6,978	6,978
Federally funded community mental health centers	13,011	21,092	59,130	94,092	102,493	98,332
Residential treatment centers for emotionally disturbed children . . .	671	994	1,666	3,431	3,147	2,519
Freestanding psychiatric outpatient clinics	4,387	10,642	15,329	21,928	21,149	29,587
All other facilities	2,446	8,783	7,300	4,501	9,561	8,916

Table 3

Number of resident patients, total admissions, net releases, and deaths, State and county mental hospitals: United States, 1950-80.

Year	Number of hospitals	Resident patients at end of year	Admissions[1]	Net releases[3]	Additions[2]	Discontinuations[4]	Deaths[4]
1950	322	512,501	152,286	99,659	N.A.	N.A.	41,280
1951	322	520,326	152,079	101,802	N.A.	N.A.	42,107
1952	329	531,981	162,908	107,647	N.A.	N.A.	44,303
1953	332	545,045	170,621	113,959	N.A.	N.A.	45,087
1954	352	553,979	171,682	118,775	N.A.	N.A.	42,652
1955	275	558,922	178,003	126,498	N.A.	N.A.	44,384
1956	278	551,390	185,597	145,313	N.A.	N.A.	48,236
1957	277	548,626	194,497	150,413	N.A.	N.A.	46,848
1958	278	545,182	209,823	161,884	N.A.	N.A.	51,383
1959	279	541,883	222,791	176,411	N.A.	N.A.	49,647
1960	280	535,540	234,791	192,818	N.A.	N.A.	49,748
1961	285	527,456	252,742	215,595	N.A.	N.A.	46,880
1962	285	515,640	269,854	230,158	N.A.	N.A.	49,563
1963	284	504,604	283,591	245,745	N.A.	N.A.	49,052
1964	289	490,449	299,561	268,616	N.A.	N.A.	44,824
1965	290	475,202	316,664	288,397	N.A.	N.A.	43,964
1966	298	452,089	328,564	310,370	N.A.	N.A.	42,753
1967	307	426,309	345,673	332,549	N.A.	N.A.	39,608
1968	312	399,152	367,461	354,996	N.A.	N.A.	39,677
1969	314	369,969	374,771	367,992	N.A.	N.A.	35,962
1970	315	337,619	384,511	386,937	N.A.	N.A.	30,804
1971	321	308,983	402,472	405,601	474,923	501,123	26,835
1972	327	274,837	390,455	405,348	460,443	472,282	23,282
1973	334	248,518	377,020	387,107	442,530	454,719	19,899
1974	323	215,573	374,554	389,179	434,345	448,203	16,597
1975	313	193,436	376,156	384,520	433,529	442,096	13,401
1976	300	170,619	N.A.	N.A.	413,559	421,461	10,922
1977*	298	159,523	N.A.	N.A.	414,703	415,314	9,716
1978*	284	153,544	N.A.	N.A.	406,407	404,031	9,080
1979*	280	145,616	N.A.	N.A.	406,259	404,031	7,830
1980*	275	137,810	N.A.	N.A.	398,451	395,165	7,108

[1]From 1950-1975 the NIMH collected information on inpatient admissions (admissions and readmissions) to State and county mental hospitals. Beginning in 1976 only information on number of *additions* is available.

[2]From 1971 to the present NIMH has collected information on inpatient additions to State and county mental hospitals on its annual Inventory of Mental Health Facilities. Additions differ from admissions because returns from leave are included as well as admissions and readmissions.

[3]For all years net releases were obtained by summing the resident patients at the beginning of the year and admissions and subtracting from the sum deaths and resident patients at the end of the year

[4]The ratio of net releases to admissions is an indication of whether the patient population is increasing or decreasing. A ratio more than 1 indicates a decreasing patient population: a ratio less than one an increasing population. Subsequent to 1975, a measure of gain or loss of patient population is the ratio of discontinuations plus deaths to additions. If this ratio is less than 1, the patient population is increasing; if it is greater than one the patient population is decreasing

*Unpublished provisional estimates for 1977, 1978, and 1979

N.A. Not available.

Sources of data:
1) 1950-1955 and 1960-1964: NIMH, *Patients in Mental Institutions*.
2) 1956-1959; NIMH Mental Health Statistics, *Current Reports*, Table A (Series MHB-H-7, January, 1963)
3) 1965-1973: NIMH, Statistical Note 112, Table 1: Resident Patients End of Year.
4) 1965-1966: NIMH, Mental Health Statistics, *Current Facility Reports*, Table 4, Provisional Patient Movement and Administrative Data, State and County Mental Hospitals, U.S., July 1, 1968-June 30, 1969
5) 1967-1968: NIMH, Statistical Note 60, Table 5, Admissions.
6) 1969: NIMH, Statistical Note 77, Table 5, Admissions.
7) 1970-1973: NIMH Statistical Note 106, Table 4, Admissions. Deaths, NIMH *Current Facility Reports* or *Statistical Notes* showing Provisional Data for State and County Mental Hospitals for each respective year.
8) 1965-1973.
9) 1974: NIMH, Statistical Note 114, Table 1.
10) 1975: NIMH, Statistical Note 132, Table 1
11) 1976: NIMH, Statistical Note 153, Table 4.
12) 1977-1979 Unpublished provisional estimates from the Survey and Reports Branch, Division of Biometry and Epidemiology, National Institute of Mental Health.

Table 4
Distribution of additions to federally funded community mental health centers by age, sex, and race, United States, 1978.

Sex and age	Race					
	Total	White	All other races	Total	White	All other races
	Number			Percent		
Both sexes						
Total	1,180,800	946,945	233,855	100.0%	100.0%	100.0%
Under 15	184,128	144,009	40,119	15.6	15.2	17.1
15-17	84,430	67,918	16,512	7.1	7.2	7.1
18-24	221,928	174,692	47,236	18.8	18.5	20.2
25-44	461,528	370,577	90,951	39.1	39.1	38.9
45-64	178,423	148,120	30,303	15.1	15.6	13.0
65+	50,363	41,629	8,734	4.3	4.4	3.7
Males						
Total	582,225	462,262	119,963	100.0%	100.0%	100.0%
Under 15	111,216	86,745	24,471	19.1	18.8	20.4
15-17	43,009	34,452	8,557	7.4	7.4	7.1
18-24	106,739	82,661	24,078	18.3	17.9	20.1
25-44	214,337	169,570	44,767	36.8	36.7	37.3
45-64	85,559	71,252	14,307	14.7	15.4	11.9
65+	21,365	17,582	3,783	3.7	3.8	3.2
Females						
Total	598,575	484,683	113,892	100.0%	100.0%	100.0%
Under 15	72,912	57,264	15,648	12.2	11.8	13.7
15-17	41,421	33,466	7,955	6.9	6.9	7.0
18-24	115,189	92,031	23,158	19.2	19.0	20.3
25-44	247,191	201,007	46,184	41.4	41.4	40.7
45-64	92,864	76,868	15,996	15.5	15.9	14.0
65+	29,998	24,047	4,951	4.8	5.0	4.3

Source: Division of Biometry and Epidemiology, National Institute of Mental Health. *Provisional Data on Federally Funded Community Mental Health Center 1978-1979.* September 1981. Table 14, p. 17.

Table 5
Utilization of mental health facilities, 1975.

Type of Facility	Admissions*								
	All races			White			All other races		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
State & County Mental Hospital	385,237	248,937	136,300	296,151	190,788	105,363	89,086	58,149	30,937
(inpatient services)	(182.2)	(243.7)	(124.7)	(161.1)	(214.2)	(111.2)	(321.9)	(444.5)	(212.0)
Private Mental Hospital	129,832	55,706	74,126	119,356	50,727	68,629	10,476	4,979	5,497
(inpatient services)	(61.4)	(54.5)	(67.5)	(64.9)	(57.0)	(72.5)	(37.9)	(38.1)	(37.7)
Outpatient Psychiatric	1,406,065	634,355	771,701	1,171,196	528,794	642,402	234,809	105,561	126,308
services	(665.0)	(621.1)	(706.0)	(637.3)	(593.8)	(678.2)	(848.8)	(806.9)	(886.3)
	Discharges*								
VA Hospital Psychiatric	218,761	215,640	3,121	179,404	176,606	2,798	39,357	39,034	323
inpatient units	(103.5)	(211.1)	(2.9)	(97.6)	(198.3)	(3.0)	(142.2)	(298.4)	(2.2)
Nonfederal general Hospital	515,537	211,569	303,968	450,992	184,219	226,773	64,545	27,350	37,195
psychiatric inpatient units	(243.8)	(207.1)	(278.1)	(245.4)	(206.9)	(281.7)	(233.3)	(209.1)	(254.9)

*The top entry in each cell denotes the number of patients, the bottom entry within parentheses donates rates per 100,000 population
Source: National Institute of Mental Health, Series CN No. 2. Characteristics of Admissions to Selected Mental Health Facilities, 1975: An Annotated Book of Charts and Tables. DHHS Publication No. (ADM) 81-1005, Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 1981.

Table 6

Hispanic American admissions as a percent of total admissions by type of facility: selected mental health facilities. United States, 1975.

Type of facility	Admissions		Hispanic admissions as a percent of total admissions
	Total	Hispanic origin	
Outpatient psychiatric services[a]	1,406,065	59,800	4.3%
Inpatient psychiatric services:			
State & county mental hospitals	385,237	13,123	3.4
Private mental hospitals	129,832	3,438	2.6
Non-Federal general hospitals	515,537	28,588	5.5
Public	139,352	14,643	10.5
Nonpublic	376,185	13,945	3.7

[a]Affiliated and freestanding outpatient psychiatric services.

Source: National Institute of Mental Health, Series CN No. 3, Hispanic Americans and Mental Health Services: A Comparison of Hispanic, Black, and White Admissions to Selected Mental Health Facilities, 1975. DHHS Publication No. (ADM) 80-1006, Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 1980. Table B, p. 2

Table 7

Age-adjusted admission rates per 100,000 population by race/ethnicity and sex: selected mental health facilities, United States, 1975.

Type of facility	White	Black	Hispanic origin
		Both sexes	
Outpatient psychiatric services[a]	639.2	814.0 (1.27)*	528.0 (0.83)
Inpatient psychiatric services:			
State & county mental hospitals	159.7	367.5 (2.30)	123.9 (0.78)
Private mental hospitals	64.4	40.6 (0.63)	37.4 (0.58)
Non-Federal general hospitals	243.3	258.9 (1.06)	271.6 (1.12)
Public	60.9	110.6 (1.82)	133.6 (2.19)
Nonpublic	182.4	148.3 (0.81)	138.1 (0.76)
		Male	
Outpatient psychiatric services[a]	587.7	729.7 (1.24)	499.7 (0.85)
Inpatient psychiatric services:			
State & county mental hospitals	213.2	509.8 (2.39)	193.6 (0.91)
Private mental hospitals	56.9	41.3 (0.73)	39.2 (0.69)
Non-Federal general hospitals	206.4	237.3 (1.15)	256.4 (1.24)
Public	64.0	122.1 (1.91)	148.0 (2.31)
Nonpublic	142.4	156.2 (1.10)	108.4 (0.76)
		Female	
Outpatient psychiatric services[a]	682.7	865.9 (1.27)	553.2 (0.81)
Inpatient psychiatric services:			
State & county mental hospitals	110.0	248.4 (2.59)	60.8 (0.55)
Private mental hospitals	71.3	40.0 (0.56)	35.9 (0.50)
Non-Federal general hospitals	277.9	277.5 (1.00)	283.4 (1.02)
Public	57.7	101.2 (1.75)	118.6 (2.06)
Nonpublic	220.1	176.3 (0.80)	164.8 (0.75)

[a]Affiliated and freestanding outpatient psychiatric services.

*Entries in parentheses are ratios of minority facility usage to White facility usage.

Source: National Institute of Mental Health, Series CN No. 3, Hispanic Americans and Mental Health Services: A Comparison of Hispanic, Black, and White Admissions to Selected Mental Health Facilities, 1975. DHHS Publication No. (ADM) 80-1006, Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 1980. Table C, p.3.

Table 8

Median age of admissions by sex and race/ethnicity: selected mental health facilities, United States, 1975.

Type of facility	White excluding Hispanic	Black excluding Hispanic	Hispanic origin
	Both sexes		
Outpatient psychiatric services[a]	28.5	25.9	28.7
Inpatient psychiatric services:			
State & county mental hospitals	35.8	32.2	31.2
Private mental hospitals	38.3	29.9	32.6
Non-Federal general hospitals	36.3	28.6	28.3
Public	33.5	27.5	28.6
Nonpublic	37.5	29.3	27.7
	Male		
Outpatient psychiatric services[a]	24.7	17.5	24.9
Inpatient psychiatric services:			
State & county mental hospitals	34.6	30.0	31.9
Private mental hospitals	36.2	28.6	30.8
Non-Federal general hospitals	34.2	27.7	25.7
Public	32.4	25.7	25.2
Nonpublic	35.4	29.2	26.6
	Female		
Outpatient psychiatric services[a]	30.7	30.0	31.2
Inpatient psychiatric services:			
State & county mental hospitals	37.9	38.0	29.3
Private mental hospitals	39.7	31.0	34.9
Non-Federal general hospitals	37.6	29.2	30.7
Public	34.6	29.0	32.8
Nonpublic	38.4	29.3	28.5

[a]Affiliated and freestanding outpatient psychiatric services.
Source: National Institute of Mental Health, Series CN No. 3, Hispanic Americans and Mental Health Services: A Comparison of Hispanic, Black, and White Admissions to Selected Mental Health Facilities, 1975. DHHS Publication No. (ADM) 80-1006, Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 1980 Table D, p. 5.

Table 9

Median years of education of admissions to selected mental health facilities compared with median years of education of the general United States population by race/ethnicity. United States, 1975.

Type of facility	White excluding Hispanic	Black excluding Hispanic	Hispanic origin
Outpatient psychiatric services[a]	12.3	11.3	11.7
Inpatient psychiatric services:			
State & county mental hospitals	11.7	10.2	10.3
Private mental hospitals	12.4	12.3	12.2
Non-Federal general hospitals	12.4	11.4	11.2
Public	12.3	11.7	10.6
Nonpublic	12.4	11.3	11.9
United States population[b]	12.3	11.0	10.0

[a]Affiliated and freestanding outpatient psychiatric services.
[b]Source: United States Bureau of the Census, Current Population Reports, Series P-20, No. 295. U.S. data for whites and blacks include persons of Hispanic origin

Table 10
Diagnostic category utilization by facility type, 1975.

Disease Category	Non-federal General Hospital Discharges	Outpatient Psychiatric Services Admissions	Community Mental Health Centers Additions
Alcohol Disorders	7.0	3.8	9.7
Drug Disorders	3.5	1.6	3.1
Organic Brain Syndrome	3.7	2.2	2.4
Depressive Disorders	37.7	12.9	13.4
Schizophrenia	24.1	10.5	10.0
Neuroses	6.2	8.2	Not listed
Personality Disorders	5.8	9.9	Not listed
Transient Disorders	.9	14.2	Not listed
Childhood Disorders	5.1	10.2	13.1
Social Maladjustment	.4	10.2	7.2
Total Percent	94.4	83.7	58.9

Source: National Institute of Mental Health, Series CN No. 2. Characteristics of Admissions to Selected Mental Health Facilities, 1975: An annotated book of charts and tables. DHHS Pub. No. (ADM) 81-1005, Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 1981. Table 5D, p. 59, Table 5E, p. 60, Table 4F, p. 54.

Table 11
Facility utilization by diagnosis, 1975.

Ratios	Non-federal General Hospital Discharges	Outpatient Psychiatric Services Admissions	Community Mental Health Centers Additions
A. *Nonwhite to White Utilization*	.95	1.33	1.37
B. *Alcohol Disorders*			
Total Nonwhite to total White	.95	1.74	1.36
Nonwhite males to Nonwhite females	2.21	3.81	3.71
White males to White females	2.89	3.31	3.80
Nonwhite males to White males	.91	2.09	1.37
Nonwhite males to White females	2.63	.63	5.21
Nonwhite females to White males	.41	.49	.37
Nowhite females to White females	1.19	1.58	1.40
C. *Drug Disorders*			
Total Nonwhite to total White	1.10	4.61	1.14
Nonwhite males to Nonwhite females	—	—	2.18
White males to White females	.92	1.18	2.01
Nonwhite males to White males	—	6.88	1.59
Nonwhite males to White females	—	8.15	3.2
Nonwhite females to White males	1.60	—	.73
Nonwhite females to White females	1.48	—	1.47
D. *Organic Brain Syndromes*			
Total Nonwhite to total White	.72	1.47	1.77
Nonwhite males to Nonwhite females	1.03	1.04	1.09
White males to White females	.77	1.07	1.05
Nonwhite males to White males	.84	1.44	1.80
Nonwhite males to White females	.65	.68	1.89
Nonwhite females to White males	.81	1.39	1.66
Nonwhite females to White females	.77	1.48	1.74

Table 11 (continued)

Facility utilization by diagnosis, 1975.

Ratios	Non-federal General Hospital Discharges	Outpatient Psychiatric Services Admissions	Community Mental Health Centers Additions
E. *Depressive Disorders*			
Total Nonwhite to total White	.43	1.12	1.08
Nonwhite males to Nonwhite females	.32	.13	.43
White males to White females	.50	.49	.47
Nonwhite males to White males	.31	.34	1.00
Nonwhite males to White females	.16	.19	.47
Nonwhite females to White males	.97	2.92	2.34
Nonwhite females to White females	.48	1.42	1.10
F. *Schizophrenia*			
Total Nonwhite to total White	2.11	1.91	2.27
Nonwhite males to Nonwhite females	1.04	.62	1.21
White males to White females	.90	1.06	1.05
Nonwhite males to White males	.46	1.40	2.44
Nonwhite males to White females	2.05	1.48	2.56
Nonwhite females to White males	2.19	2.26	2.02
Nonwhite females to White females	1.97	2.40	2.12
G. *Neuroses*			
Total Nonwhite to total White	.74	.82	Not listed
Nonwhite males to Nonwhite females	—	.40	Not listed
White males to White females	.72	.48	Not listed
Nonwhite males to White males	—	.71	Not listed
Nonwhite males to White females	—	.35	Not listed
Nonwhite females to White males	1.28	1.78	Not listed
Nonwhite females to White females	.93	.86	Not listed
H. *Personality Disorders*			
Total Nonwhite to total White	.60	.55	Not listed
Nonwhite males to Nonwhite females	1.69	1.37	Not listed
White males to White females	1.02	1.09	Not listed
Nonwhite males to White males	1.02	.61	Not listed
Nonwhite males to White females	.77	.67	Not listed
Nonwhite females to White males	.45	.45	Not listed
Nonwhite females to White females	.46	.49	Not listed
I. *Transient Disorders*			
Total Nonwhite to total White	1.02	1.21	Not listed
Nonwhite males to Nonwhite females	.96	.55	Not listed
White males to White females	.71	.80	Not listed
Nonwhite males to White males	1.21	.95	Not listed
Nonwhite males to White females	.36	.76	Not listed
Nonwhite females to White males	1.26	1.74	Not listed
Nonwhite females to White females	.89	1.39	Not listed

Table 11 (continued)
Facility utilization by diagnosis, 1975.

Ratios	Non-federal General Hospital Discharges	Outpatient Psychiatric Services Admissions	Community Mental Health Centers Additions
J. *Childhood Disorders*			
Total Nonwhite to total White	Insufficient data	1.23	1.36
Nonwhite males to Nonwhite females		1.81	1.36
White males to White females		2.44	1.24
Nonwhite males to White males		1.12	1.42
Nonwhite males to White females	Insufficient data	2.73	1.76
Nonwhite females to White males		.62	1.04
Nonwhite females to White females		1.51	1.29
K. *Social Maladjustment*			
Total Nonwhite to total White		1.32	1.36
Nonwhite males to Nonwhite females		.27	.80
White males to White females		.50	1.24
Nonwhite males to White males		.83	.78
Nonwhite males to White females		.41	.42
Nonwhite females to White males		3.05	1.04
Nonwhite females to White females		1.52	1.29

Source: Compiled and abstracted by CHESS. Computed from various tabular data contained in National Institute of Mental Health, Series CN No. 2. Characteristics of Admissions to Selected Mental Health Facilities, 1975: An annotated book of charts and tables. DHHS Pub. No. (ADM) 81-1005, Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 1981. Table 5D, p. 59, Table 5E, p. 60, Table 4F, p. 54.

Table 12

Number of discharges and hospital days due to mental disorders, Indian Health Service and contract general hospitals, fiscal years 1967-72.

	Fiscal Year							
	1982	1976	1972	1971	1970	1969	1968	1967
Total Number of Discharges	4,954	6,833	6,017	5,310	4,750	4,631	3,922	3,092
IHS Hospitals	3,956	4,948	4,662	4,138	3,657	3,665	3,003	2,430
Contract Hospitals	998	1,885	1,355	1,172	1,093	966	919	662
Total Hospital Days			40,521	36,198	26,571	28,501	27,737	19,614
IHS Hospitals			34,666	29,343	22,189	24,630	22,462	16,507
Contract Hospitals			5,855	6,855	4,382	3,871	5,275	3,107

Source: Indian Health Service. Indian Health Trends and Services. 1978 edition DHEW Pub. (HSA) 78-12009. Table 6.7

Table 13

Fifteen leading causes of outpatient visits by diagnostic classification.[1] Indian Health Service facilities, fiscal year 1976.

Diagnostic classification and ICDA code	Number	Percent distribution
Total, all causes	2,812,821	100.0
Respiratory system (460-519)	432,607	15.4
Accidents, poisonings, and violence (800-999)	192,218	6.8
Skin diseases (580-709)	191,172	6.8
Infective and parasitic diseases (001-136)	149,479	5.3
Symptoms and ill-defined conditions (780-796)	149,090	5.3
Ear diseases (380-389)	141,913	5.0
Circulatory system (390-458)	124,099	4.4
Endocrine, nutritional, and metabolic (240-279)	114,770	4.1
Eye diseases (360-379)	111,844	4.0
Pregnancy, childbirth, and puerperium (630-678)	106,770	3.8
Musculoskeletal system (710-738)	97,149	3.5
Digestive system (520-577)	85,628	3.0
Female genitalia and breast (610-629)	64,829	2.3
Mental disorders (290-315)	57,244	2.0
Diseases of urinary tract (580-599)	45,084	1.6
Supplementary and all other diagnoses and no diagnosis code provided	748,925	26.6

[1]The number of problem or clinical impressions recorded are not the same as the number of outpatient visits. Provisions are made on the Ambulatory Patient Care reporting form for recording the two most significant problems or clinical impressions observed during a visit
Source: Indian Health Service. Indian Health Trends and Services. 1978 edition DHEW Pub. (HSA) 78-12009. Table 6.4

Table 14

Ten leading causes of hospitalization, Indian Health Service and contract hospitals, fiscal year 1976.

Diagnostic category	Number of discharges			Percent distribution	
	Total	IHS	Contract	IHS	Contract
All diseases	104,436	75,717	28,719	100.0	100.0
Complications of pregnancy, childbirth, and puerperium	18,401	13,788	4,613	18.2	16.1
Accidents, poisonings, and violence	15,752	10,614	5,138	14.0	17.9
Diseases of respiratory system	11,083	7,595	3,488	10.0	12.1
Diseases of digestive system	7,627	5,121	2,506	6.8	8.7
Mental disorders	6,833	4,948	1,885	6.5	6.6
Infective and parasitic diseases	5,401	4,325	1,076	5.7	3.7
Special conditions and examinations	5,933	5,405	528	7.1	1.8
Diseases of nervous system and sense organs	4,903	3,625	1,278	4.8	4.5
Diseases of genitourinary system	4,941	3,427	1,514	4.5	5.3
Diseases of circulatory system	4,663	3,203	1,460	4.2	5.1
All other diseases	18,899	13,666	5,233	18.0	18.2

Source: Indian Health Service. Indian Health Trends and Services. 1978 edition DHEW Pub. (HSA) 78-12009. Table 6.7

Table 15

Alcoholism deaths and crude death rates, American Indians and Alaska Natives in 25 reservation States, and United States, all races (all States).

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
							Number of Deaths							
American Indians and Alaska Natives														
Alcoholism	55	51	91	81	97	107	102	159	164	171	NA	NA	NA	NA
Alcoholic psychoses	5	6	10	7	8	10	8	5	7	4	NA	NA	NA	NA
Cirrhosis of liver with mention of alcoholism	128	126	165	179	167	217	205	235	246	228	NA	NA	NA	NA
Total	188	188	266	267	272	334	315	399	417	403	425	429	437	398
							Alcoholism Death Rates (Deaths per 100,000 Population)							
American Indians and Alaska Natives														
Alcoholism	8.9	8.0	13.8	11.9	13.8	14.8	13.6	20.7	20.8	20.5	NA	NA	NA	NA
Alcoholic psychoses	0.8	0.9	1.5	1.0	1.1	1.4	1.1	0.7	0.9	0.5	NA	NA	NA	NA
Cirrhosis of liver with mention of alcoholism	20.7	19.7	25.0	26.3	23.8	30.1	27.4	30.5	31.1	27.3	NA	NA	NA	NA
Total	30.4	28.6	40.3	39.2	38.7	46.3	42.1	51.9	52.8	48.3	48.3	47.9	44.8	NA
							Alcoholism Death Rates (Deaths per 100,000 Population)							
U.S. All Races														
Alcoholism	1.6	1.5	2.0	2.0	2.1	2.1	2.1	2.2	2.3	NA	NA	NA	NA	NA
Alcoholic psychoses	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	NA	NA	NA	NA	NA
Cirrhosis of liver with mention of alcoholism	4.8	4.8	5.0	5.2	5.5	5.8	6.0	6.0	6.2	NA	NA	NA	NA	NA
Total	6.7	6.6	7.3	7.5	7.9	8.2	8.3	8.4	8.7	8.6	8.6	8.5	8.5	NA

Source: Indian Health Service. Indian Health Trends and Services. 1978 edition DHEW Pub. (HSA) 78-12009. Table 4.14

Table 16

Distribution by mental disorder of utilization of Indian Health Service Hospitals (including contract hospitalizations), fiscal years 1967-72.

Nature of Mental Disorder	Fiscal Year					
	1972	1971	1970	1969	1968	1967
	Percent Distribution					
Total	100.0	100.0	100.0	100.0	100.0	100.0
Alcoholism and Drug Dependence[1]	67.7	64.6	65.0	64.5	59.1	55.7
Neuroses and Personality Disorders	16.9	19.4	19.3	20.3	23.0	25.6
Psychoses (Non-organic)	5.9	6.2	5.5	4.9	4.9	6.5
Transient Situational	2.8	3.0	2.4	2.8	2.7	2.9
Organic Brain Syndrome[2]	2.4	2.7	3.0	3.2	3.6	3.6
All Others	4.3	4.1	4.8	4.3	6.7	5.7
	Male to female sex ratio					
Total	1.5	1.4	1.3	1.3	1.2	1.2
Alcoholism and Drug Dependence[1]	2.9	2.5	2.3	2.5	2.4	2.6
Neuroses and Personality Disorders	0.3	0.4	0.3	0.3	0.3	0.3
Psychoses (Non-organic)	0.7	0.8	0.6	0.5	0.9	0.7
Transient Situational	0.3	0.3	0.3	0.3	0.3	0.4
Organic Brain Syndrome[2]	2.3	1.4	1.3	1.4	2.4	1.2
All Others	0.6	0.6	0.7	0.7	0.6	0.5

[1]Incl. alcohol psychosis.
[2]Excl. alcohol psychosis.

Table 17

Suicide deaths and age-adjusted rates per 100,000 population for Indians and Alaska Natives in reservation States and for United States, all races, 1959 to 1975.

Year	Number		Age-adjusted rates and their ratio		
	Indians and Alaska Natives	U.S. All Races	Indians and Alaska Natives	U.S. All Races	Ratio of Indians to U.S. All Races
1979 . . .	188	NA	21.8	11.9	1.8
1978 . . .	150	27,294	18.5	12.0	1.5
1977 . . .	199	28,681	26.6	12.9	2.1
1976 . . .	168	26,832	22.5	12.3	1.8
1975 . . .	180	27,063	26.0	12.6	2.1
1974 . . .	148	25,683	21.8	12.2	1.8
1973 . . .	149	25,118	22.9	12.0	1.9
1972 . . .	133	25,004	20.6	12.1	1.7
1971 . . .	135	24,092	21.8	11.9	1.8
1970 . . .	105	22,630	17.9	11.8	1.5
1969 . . .	94	22,364	16.8	11.3	1.5
1968 . . .	90	21,372	17.5	11.0	1.6
1967 . . .	94	21,325	16.2	11.1	1.5
1966 . . .	64	21,281	15.2	11.2	1.4
1965 . . .	65	21,507	12.9	11.4	1.1
1964 . . .	52	20,588	15.8	11.0	1.4
1963 . . .	66	20,825	15.6	11.3	1.4
1962 . . .	59	20,207	16.9	11.1	1.5
1961 . . .	61	18,999	16.7	10.5	1.6
1960 . . .	57	19,041	16.8	10.6	1.6
1959 . . .	57	18,633	17.0	10.6	1.6

Source 1) Indian Health Service. Indian Health Trends and Services. 1978 edition DHEW Pub. (HSA) 78-12009. Table 4.11.
2) Indian Health Service. FY 1984 Budget Appropriation Chart Series Tables. April 1983.

Table 18

Homicide deaths and age-adjusted rates per 100,000 population for Indians and Alaska Natives in reservation States and for United States, all races, 1959 to 1975.

	Number		Age-adjusted rates and their ratio		
Year	Indians and Alaska Natives	U.S. All Races	Indians and Alaska Natives	U.S. All Races	Ratio of Indians to U.S. All Races
1975 . . .	185	21,310	26.5	10.5	2.5
1974 . . .	203	21,465	30.1	10.8	2.8
1973 . . .	196	20,465	29.6	10.5	2.8
1972 . . .	153	19,638	27.6	10.3	2.7
1971 . . .	149	18,787	26.1	10.0	2.6
1970 . . .	125	16,848	23.8	9.1	2.6
1969 . . .	132	15,477	22.5	8.6	2.6
1968 . . .	116	14,686	22.2	8.2	2.7
1967 . . .	110	13,425	20.3	7.7	2.6
1966 . . .	79	11,606	20.3	6.7	3.0
1965 . . .	102	10,712	19.7	6.3	3.1
1964 . . .	84	9,814	23.6	5.8	4.1
1963 . . .	85	9,225	22.3	5.5	4.1
1962 . . .	80	9,013	21.0	5.5	3.8
1961 . . .	63	8,578	20.9	5.3	3.9
1960 . . .	80	8,464	19.5	5.3	3.7
1959 . . .	62	8,159	20.5	5.1	4.0
1976 . . .	185	19,554	26.6	9.5	2.8
1977 . . .	197	19,968	26.5	9.6	2.8
1978 . . .	218	20,432	27.8	9.6	2.9
1978 . . .	209	22,550	25.5	10.4	2.5

Source: Indian Health Service. Indian Health Trends and Services. 1978 edition DHEW Pub. (HSA) 78-12009. Table 4.13.

Table 19

Race breakdown by quarter (in percentages) in use of drug clinics.

	1975				1976	
Race	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
White	53.4	52.6	51.6	52.1	51.8	50.7
Black	34.8	35.2	36.1	35.4	35.1	36.2
Spanish American	10.4	10.8	10.8	11.0	11.7	11.8
Other	1.4	1.4	1.5	1.5	1.4	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total N	51,762	50,842	53,389	35,844	59,171	55,045

Source: National Institute on Drug Abuse, U.S. DHEW. *Data from the Client Oriented Data Acquisition Process (CODAP),* Statistical Series Quarterly Report, April-June 1976.

Table 20

Race breakdown by quarter for clients abusing barbiturates, amphetamines, opiates, and marijuana (in percentages).

Clients abusing barbiturates (in percentages).

	1975				1976	
Race	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
White	82.5	79.8	78.4	79.4	78.8	77.4
Black	11.5	13.9	14.5	13.5	12.2	13.3
Spanish American	4.5	5.1	4.6	4.8	6.6	6.6
Other	1.5	1.2	2.5	2.3	2.5	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total N	2,494	2,447	2,367	2,860	2,741	2,575

Clients abusing amphetamines (in percentages).

	1975				1976	
Race	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
White	87.3	86.1	85.2	82.6	85.0	84.0
Black	8.3	9.7	10.6	11.3	10.7	11.7
Spanish American	2.6	2.8	2.3	4.3	3.2	3.1
Other	1.8	1.4	1.4	1.8	1.1	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total N	2,356	2,203	2,143	2,519	2,836	2,555

Clients abusing opiates (in percentages).

	1975				1976	
Race	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
White	38.3	38.0	38.3	38.9	38.7	38.6
Black	47.5	47.5	47.6	46.2	45.8	46.0
Spanish American	13.4	13.8	13.1	13.8	14.4	14.4
Other	0.9	0.9	1.0	1.0	1.1	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total N	28,175	28,725	31,481	34,263	36,489	35,584

Clients abusing marijuana (in percentages).

	1975				1976	
Race	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
White	70.0	68.8	67.0	68.5	69.9	69.6
Black	19.2	20.4	20.9	20.1	18.5	19.6
Spanish American	8.4	8.2	9.6	8.6	9.8	8.9
Other	2.4	2.5	2.5	2.8	1.8	1.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total N	8,339	7,816	7,570	6,958	6,314	4,902

Source. National Institute on Drug Abuse, U.S. DHEW. *Data from the Client Oriented Data Acquisition Process (CODAP)*, Statistical Series Quarterly Report, April-June 1976

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Chapter VIII　　　　Dental Health

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Overview

Four measures of dental health status were utilized to analyze the various demographic variables of interests: (a) utilization of dental health services; (b) dental caries; (c) periodontal disease; and (d) missing teeth. All four of these measures indicated poor dental health among those of lower income, those of lower formal educational levels, and those residing in rural areas. These measures varied in their indication of whether racial minorities had poorer or better dental health status. All four measures also indicated that any disparities that exist are lessening or have lessened over time.

Many studies have been conducted on dental health services utilization since 1930. In the last 50-year period, the rate of persons having at least one dental visit during the preceding year rose from approximately 25 percent to approximately 50 percent. All of the studies that included such demographic variables showed that utilization rates were substantially higher among whites, women, those with higher income, the more highly educated, those living in the more densely populated areas, and those in the Northeast and Far West.

Utilization rates of blacks have changed rapidly in the last two decades. Twenty years ago, white utilization rates were almost twice the nonwhite races. The gap had narrowed to 1.64 times the nonwhite rate by 1981. If that

rate of increased use continues, the gap will be eliminated by the turn of the century.

Hispanics formed two groups with respect to utilization. One group was comprised of Mexican-Americans, whose utilization rates were similar to those of blacks. The other was comprised of all other Hispanics; their utilization rates were approximately midway between the rates of blacks and those of whites for visits during the last year, and about the same or slightly higher than whites for the number of annual visits.

The Public Health Service Health Examination Survey used actual dentists' examinations of teeth, rather than self reports, as data. This fact should have made the data more accurate than other extant health status data. But the dentists had constraints on their procedures disallowing the use of dental xrays or other than superficial examination of teeth. We can assume that their observations of fillings and missing teeth are very accurate. Their measurements of dental caries, on the other hand, may have resulted in lower rates than might have been reported if radiographs had been used. But there is no reason to believe that any examination errors should not have been random with respect to racial/ethnic and other demographic variables. Given this caveat, the data clearly show that as family income and educational levels increase, the mean number of decayed teeth decreases, the number of filled teeth increases, and the number of missing teeth decreases. As for race, blacks have higher

decay rates (particularly among women), slightly higher missing teeth rates, and substantially lower filled teeth rates. Caution is suggested in interpreting the composite DMF (decayed, missing, and filled teeth) rates reported, since almost all of the composite score differences are attributable to filled teeth.

The incidence of periodontal disease was much higher among males than among females. Black females had consistently higher periodontal disease rates than did white females at all income and education levels; black males had the highest rates of all racial/sexual groups.

Judgments by examining dentists as to the need for dental care, and thus the oral health status, of the U.S. population varied inversely with income and educational levels of patients. Blacks were judged to require dental care at rates about 67 percent above whites.

A. Introduction

An exact gauge of the dental health status of a nation or of a subpopulation within a nation is difficult to obtain. A comparative statement is difficult to make, because comparable data are not available from other countries. An absolute statement is likewise difficult, because there is no way of knowing what the dental health of our Nation should be. This becomes more apparent when we look at the measures that are available for assessing dental health status.

The major dental problems are diseased teeth, diseased tissues surrounding the teeth (periodontal

disease), or missing teeth (edentulism). When the teeth themselves are diseased, by far the major contributing factor is dental caries (cavities). The effect of dental caries can be measured as an untreated cavity or as a filling, the difference being that in the latter case an arrest of the disease process has taken place, and a health care need has been met.

As indicated previously, it is difficult to arrive at an absolute standard for dental health, since the total absence of these problems is an unrealistic standard and there are no criteria by which the minimal rates for these problems can be specified. Our analyses of dental health status are therefore limited to enumerations of dental health services utilization and the presence of caries, periodontal disease, and missing teeth; to shifts in these measures over time; and to comparisons of the these indexes between subpopulations. These analytic approaches are detailed in the rest of this chapter.

Additional caveats on the interpretation of the data presented are contained in Chapter I of this book.

B. Dental Care Services Utilization

In the previous edition of this book, a careful 50-year analysis was made of the patterns of the dental services utilization. The documentation of all the various studies leading to the analysis will not be repeated here, although we must ex-

amine those findings before continuing our look at the dental health status of minorities and low income groups (1–10). Table 1 summarizes the 50 years of study, showing the patterns of dental service utilization within that period of time.

Usually dental service utilization is measured in one of three ways: (a) whether or not a respondent (and/or family members) had visited a dentist within the past 1 or 2 years; (b) how many dental visits were made for respondent (and/or family members) within some period of time; or (c) the period of elapsed time since the last dental visit. Table 1 reports studies that used the first of these measures and shows a very definite pattern: Since the 1930's, there has been an increased use of dental services by the American population. The rate has increased from 2.0 to 2.5 times the initial rate recorded at the beginning of that time period and is probably still on the increase.

We might posit reasons for such a change by inverting the problem. That is, we could hypothesize the reasons why people may not seek dental care and determine whether or not there is any evidence to support any of those hypotheses. These hypotheses would include:

1. Dental care is not needed.
2. Dental care is perceived as an unneeded service.
3. Dental care is unaffordable.

Probably no factors have caused an individual's need for dental services to rise; indeed, fluoridated toothpastes and water supplies might have induced the reverse effect. Thus we can probably

eliminate the first reason. There have not been any drastic changes in overall affluence within the more recent years of this period, at least none that would produce the magnitude of the changes noted. This probably eliminates the third reason. This leaves changes in needs perception, which probably has contributed most heavily to the trend noted. Let us explore this reason further.

It has been suggested that, psychologically, individuals may perceive the need for dental care with much less of a sense of urgency than other health problems, for the following reasons:

1. In early stages, dental caries and most periodontal disorders are not detectable.
2. Dental diseases do not usually lead to gross disability until fairly advanced stages (i.e., people can still masticate, and if there is some pain, they can tolerate it).
3. Most adults have 28 to 32 teeth to lose before becoming totally edentulous, while they only have two arms, two eyes, etc. Therefore they can afford to lose a tooth or two and still be quite functional as far as mastication is concerned.
4. If teeth are lost, they can be replaced at a price within reach.

In other words, people may have believed that they could afford to be more casual about their dental health than they could about other body systems and suffer fewer untoward effects, including debility. As we shall see, educational levels of the head of household have a powerful effect on dental services utilization, so if we accept a correlation between educational level and the

understanding of the need for dental care, perhaps we can also accept that the perception of need for dental care is the most potent factor determining dental services usage.

Table 2 presents data on the intervals since the last dental visit, taken from the National Health Interview Survey. Although the 17-year period charted in that table (1964 to 1981) has witnessed a decrease in those who have never visited a dentist, that rate seems to have stabilized at just under 11 percent. The breakdown of these respondents demonstrates that most of those who are in this category are the young, who apparently do not visit the dentist with any frequency before they get their permanent teeth. From the breakdown by family income, it appears that there was a relatively strong economic basis to this health behavior in 1964. But that effect lessened by 1976, and lessened even further by 1981, at which time the economic factor was a less profound factor than age. Thus, one reason why dental utilization rates are not higher may be that we have almost reached a point where the need for dental services for young children has been met.

When those data are analyzed by race, we note that, with respect to numbers of visits, there have been practically no changes in the practices of whites, but there does seem to have been a change among blacks. The white-to-black ratio with respect to dental visits was 1.89 in both 1964 and 1975, but by 1981 this ratio had dropped to 1.64. If this rate of change were to continue, the ratio would drop to 1.0 by the end of the century.

A similar change is apparent regarding the interval since the last visit. In 1946 to 1981, the proportion of whites who had seen a dentist within the preceding 11 months increased by 7.5 percent, while the proportion of blacks who had seen a dentist within the preceding 11 months increased by 12.7 percent. The ratio of differentials was 1.96 in 1964, 1.57 in 1976, and 1.47 in 1981. Again, if this rate of change were to continue, the differential would hit parity by the turn of the century.

A similar pattern occurs for those who have never visited a dentist. During 1946 to 1981, the proportion of whites never having visited a dentist dropped 3.3 percent, while the black proportion dropped 12.8 percent, with the differential ratio decreasing from 1.96 to 1.62 to 1.40. If this rate of change were to continue, this disparity would also disappear by the turn of the century (see Table 2).

In analyzing the three measures (never visited, number of visits, and interval since last visit) as a function of the five income groups listed in Table 2, we notice that the upper two income groups have been relatively static (actually, with respect to number of visits, there has been a decrease). We also note that the lower three income groups (particularly the lowest two income groups) have had substantially increased dental services utilization (see Table 2).

A similar picture emerges with respect to dental services utilization as a function of population density. The changes that have occurred over time have been greater outside of Standard Metropolitan Statistical Areas than within, to the point where the differentials between these geographic densities are becoming slight.

Figure 1A

Unadjusted and age-adjusted percent of population with a dental visit within a year of interview, by family income: United States, 1978 and 1979

Unadjusted

Age-adjusted Percent of population with dental visit in past year

Source: National Center for Health Statistics: Dental Visits Volume and Interval Since Last Visit: United States, 1978 and 1979. DHHS Pub. No. (PHS) 82-1566. Series 10, Data from the National Health Survey; No. 138. Hyattsville, MD, April, 1982.

Figure 1B

Unadjusted and age-adjusted percent of population with a dental visit within a year of interview, by education of head of family: United States, 1978 and 1979

Unadjusted

Age-adjusted Percent of population with dental visit in past year
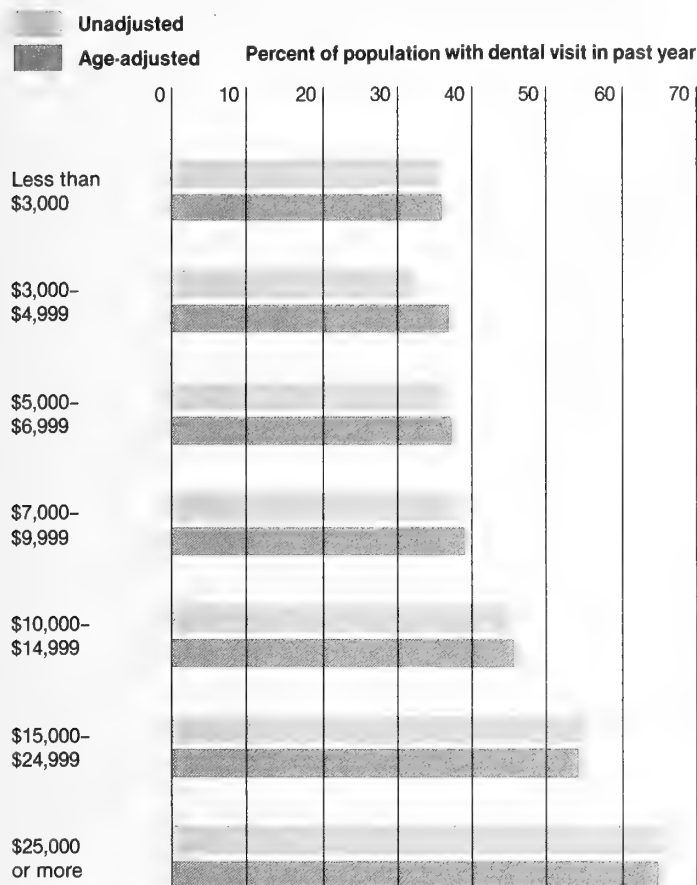
Source: National Center for Health Statistics: Dental Visits Volume and Interval Since Last Visit: United States, 1978 and 1979. DHHS Pub. No. (PHS) 82-1566. Series 10, Data from the National Health Survey; No. 138. Hyattsville, MD, April, 1982.

Although not shown in Table 2, there has been a greater decrease in "never visited a dentist" rates among farm than among nonfarm residents within the category "outside SMSA." In fact, there has been an inversion. The nonfarm-to-farm ratio in 1963-1964 was 1.13, dropping to 1.03 in 1969 and then inverting to 0.93 in 1978-1979.
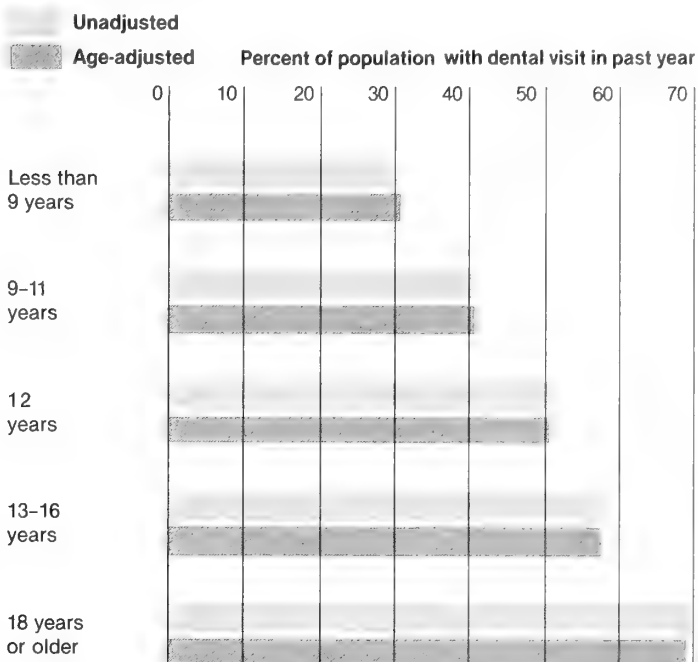
With respect to the educational level of the head of family, we see a profound correlational factor, but it is changing quite slowly. The differential ratio of dental visits within a year between those with family heads of 13 and more years of education and those with less than 9 years of education was 2.33 in 1963-1964, 2.24 in 1969, and 2.17 in 1978-1979. In 1978-1979, among those living in families whose head of household had 16 or more years of education, 69.1 percent had visited a dentist within the previous year.

Figure 1 presents a comparison between the effects of income and the effects of education of the head of family (to the extent that they can be compared). It appears from the kurtosis of the distribution (i.e., the steepness of the curve) that the educational variable is the stronger of the two in determining utilization of dental services. This comparison does not appear to be a result of the parameters used to set up the income and educational level groupings (11).

Data on dental visits made by Hispanics in the 1976-1978 time period can be found in Table 3 (12). These data are disaggregated by four types of Hispanic origin. The fourth category, "other Spanish ancestry," is composed of persons of European (i.e, Spain) and South American origins.

The overall proportion of Hispanics with dental visits is somewhat similar to the ratio for blacks. By disaggregating the data in this fashion, however, we find that there are two separate clusters of Hispanics. One cluster is made up of Mexican-Americans (the M-A Group) and the other of all other Hispanic groups (the A-O Group).

The data for the M-A Group is somewhat similar (actually, it has slightly lower percentages) to that for blacks, while the data for the A-O Group is approximately halfway between the data for blacks and the data for whites. Since Mexican-Americans constituted 57.3 percent of all Hispanics during those years, they greatly affected the overall data. That effect is particularly evident from the ratios in parentheses behind each percentage entry. For all ages, the M-A Group with incomes below $10,000 ran 32 percent behind all Hispanics in the same income bracket, and for those earning over $100,000 the disparity was 12 percent. The differences between the three other

Hispanic groups are not sufficiently great to deserve additional comment.

The effects of income on dental services utilization also varied among the Hispanic subgroups, but this variable had a differential effect on the subgroups. The ratio of high income to low income group for persons with recent dental visits was 1.45; for the "other Spanish ancestry" subgroup the ratio was 1.31; and for the Cuban subgroup that ratio was 1.26. The income factor had an almost negligible effect on the Puerto Rican subgroup, for which the ratio was only 1.09. Obviously, before an interpretation of these ratios can be made, the distributions of income above $10,000 in those years and within those subgroups should be studied to determine if the distributions are sufficiently similar between subgroups to allow conclusions to be drawn concerning these differential ratios (12).

In 1976, the number of dental visits per person per year was 1.7 for whites and 0.9 for blacks. Hispanics again were divided into two groups. Mexican-Americans constituted one group, with an average number of visits identical to blacks (0.9), while the other three Hispanic subgroups had visit rates equal to or slightly higher than that of whites (1.7 to 1.9). The pattern of visits by age group was distinct for each Hispanic subgroup. One noticeable difference was the very low rate of visits for those 65 and over among Mexican-Americans and Cubans, while the same age group had an unusually high visit rate among Puerto Ricans. These kinds of variations are more typically generated by health care

beliefs than by need for dental health care (see Table 4). Since those over 65 constitute a relatively small proportion of the Hispanic population, the validity of age-related factors must receive additional scrutiny.

The effect of income on the number of dental visits was similar to its effect on dental visits within the previous year. The ratio of dental visits per person for the high income group to those for the low income group was 2.0 for Mexican-Americans, 2.61 for other Hispanics, and 1.21 for Cubans. While the effect of income was negligible on *recent visits* for Puerto Ricans, that was not the case for *numbers of visits* by Puerto Ricans, since the ratio for these income classes within this ethnic subgroup was 1.43 (see Table 4).

Table 5 illustrates some of the changes that have occurred in dental services utilization as a function of income. In this table, instead of a fixed income dividing the groups, the poverty levels for the respective years of the study are used. These poverty levels are listed at the bottom of the table. This table probably represents the best picture of how the changes in the acceptance of dental services as a necessary component of health care have occurred over time (13).

For whites, over the 17-year period traced by Table 5, there has been a decrease of about 12 percent in the proportion of the population with no dental visits in the past 2 years. The drop among the nonpoor in the same time period was approximately 7 percent. Among the poor, the age bracket that most seemed to reflect that same trend was persons under 17 years of

age. The 45-64 age bracket demonstrated a similar trend, while the elderly age bracket (65 years and over) showed twice as large a decrease in persons with no dental visits.

Among nonwhites, the effects have been much more dramatic. The poor in this racial aggregation have seen a drop of 21.6 percent in the proportion of people who have not had a dental visit within the past 2 years, while the nonpoor have seen a drop of almost 16 percent. Among the poor, the biggest drop was again in the lowest age bracket (under 17), but significant decreases occurred in all age brackets. Among the nonpoor, the largest drop also occurred in the youngest age bracket, although a sizeable decrease occurred in the 45-64 age bracket as well. Some of these changes may have resulted from certain of the "Great Society" programs initiated in the 1960's. There is some question as to whether those programs (a) were sufficient in scope to bring about changes of this magnitude, (b) would have resulted in the continuing decline we have experienced, or (c) would have affected the nonpoor. Perhaps we can posit the equally defensible hypothesis that this attitudinal (or at least behavioral) change is the result of ads for toothpaste, floss, and denture adhesive. According to many of these ads, it is important for children to get good report cards from their dentists, and perhaps that is just what is happening.

C. Decayed, Missing, and Filled Teeth

As indicated previously, decayed, missing, and filled teeth are measures of dental health status, but it is only with some difficulty that those measures can be used as a cluster.

The DMF index (a composite score of decayed, missing, or filled teeth) includes two categories that reflect morbidity (decayed teeth and missing teeth) and one category that reflects restorative dental care (filled teeth). Since this last category actually reflects healthy teeth (obviously, not as healthy as unfilled teeth with no decay, but nonetheless teeth that do not at the time of examination require health care), there is some question as to the value of the DMF index as a health status measure. Instead of using that index, we shall only use its component parts separately.

Some definitions must also be clarified before discussing dental morbidity. The presence in a tooth of a faulty filling, or the presence of decay in a filled tooth, results in that tooth being scored as a decayed tooth, not a filled tooth. The definition of "filled teeth" includes crowns that may have been used because of caries, trauma, or the need for cosmetic improvements.

Missing teeth among edentulous persons may have resulted from dental caries, trauma, or dental treatment to a health tooth because of other dental problems, such as those associated with orthodontia or periodontal disease.

We can now examine some of the descriptive dental health status data. Table 6 compares the findings of the 1960-1962 and the 1971-1974 studies. Except for females 55 to 74 years of age, for whom no change in unrestored decayed teeth was noted, females in the other three age categories and males in all age categories showed a decline in the number of decayed

teeth. Overall, this reflected an approximate 17 percent decrease in decayed teeth. In both studies, women had an equal or slightly lower decayed tooth rate than did men. It is impossible to know how much of the reduction over time was due to increased frequency of dental visits, additional fluoridation of water supplies, increased usage of dentifrices with fluoride additives or fluorides applied topically otherwise, or changes in nutritional patterns, all of which were occurring in this 11- to 14-year span of time.

From Table 7, it can be seen that for both sexes and for all age groups above 5 years, blacks had a higher average number of decayed teeth and a higher average number of missing teeth. Also, while white males had higher decayed teeth rates than did white females, the other three racial/sexual comparisons (white males with black females, black males with black females, and black males with white females) showed males having the healthier teeth (14).

The effects of race and sex are more evident in Table 8, from which it can be seen that there is a greater discrepancy between the sexes among blacks for missing teeth (females have about a 15 percent higher missing teeth rate than males) than there is for decayed teeth. Among whites the discrepancies were about the same, but in opposite directions for the two types of dental morbidity. Table 9, which compares the sex differences between the races, shows that missing teeth rates were closer between the races and the sexes, whereas the decay rates were quite disparate. The disparity was noticeably higher among females than males (15). Although the

totals included other races, there were too few in the sample to break them out as a separate group and too few to have any impact on the conclusions drawn.

Table 7 also demonstrates the racial/sexual differences with respect to filled teeth. As indicated earlier, this is the only one of the three measures which solely represents use of dental care services, and the comparisons are startling. Tables 8 and 9 illustrate the comparisons quite graphically. Females have a greater amount of restorative dental care than males. While the difference among whites favors females by 9 percent, among blacks the female rate runs 27 percent higher than the male rate. The comparisons within sex but between races are even more startling. White women average 3.84 times more filled teeth than black women, and white males average 4.47 times more filled teeth than black males. These ratios seem due in part to the fact that blacks, both male and female, have decayed teeth in need of fillings. But these ratios are too large for that factor to account for more than about half of the differences noted (16).

If we add together decayed and filled teeth to get a measure of total dental caries restored and unrestored, we see that blacks have about half of the dental caries rate of whites (8.0 for white males, 8.4 for white females, 3.7 for black males, and 4.3 for black females). We also see that females have higher total rates than do males (white females 5.0 percent higher, black females 16.2 percent higher). If we now compare the number of filled teeth to this combined number, we have a measure of dental

health needs met (i.e., F/D + F). This measure demonstrates that whites have "dental health needs met" scores (for dental caries) that are twice those of blacks (0.8375 for white males, 0.8690 for white females, 0.4054 for black males, and 0.4419 for black females). We also see that females have higher "dental health needs met" scores (for caries) than do males [(3.76 percent higher for whites and 9.0 percent for blacks)].

We can therefore conclude, as has been concluded many times elsewhere in the literature, that blacks appear to have naturally healthier teeth from the standpoint of dental decay. The only explanatory hypotheses that seem to fit the known facts are those associated with nutrition and those associated with genetics.

D. Periodontal Disease

For adults over the age of 35, periodontal disease has been found to be the most significant factor in the loss of teeth. That cluster of diseases is generally associated with the deterioration of the tissue that anchors the teeth. The severity of this disease varies from a mild inflammation of the supportive tissue to a general destruction of the dental foundation materials, including the bone matter adjacent to the dental tissue. In very advanced stages of periodontal diseases, tooth loss is inevitable.

The causes of periodontal diseases remain unknown. It is suspected, however, that mouth bacteria and the presence of plaque and calculus play significant roles. This assumption is partially supported by studies that have demonstrated diminished periodontal pathology with increased levels of oral cleanliness (16).

Table 10 lists the average periodontal index PI (a weighted score, by seriousness of disease) distributed by age, sex, and race for 1971-1974. Note that the prevalence of the disease is greater among blacks and among males, and that the prevalence increases with age. Racial/sexual comparisons are found in Table 11; the sexual and racial ratios do not vary much. The PI relationship associated with sex and race occurs throughout all age groups (15).

The relationships between preventive health behaviors and periodontal disease are of some concern since they represent resources in addition to dental health care that might help achieve dental health parity. No relationship seems to obtain for alcohol consumption, but two other variables that are related to periodontal disease (toothbrushing and smoking) are documented in Tables 12 and 13.

Table 12 shows that toothbrushing has a profound effect on PI scores. The ratio of the indexes for no brushing to brushing once a day is 2.53 for the mean and 7.10 for the median. A significant decrease in the PI also occurs for the second daily brushing; the ratio between a once-daily and a twice-daily brushing drops to 1.33 for the mean and 1.78 for the median. Adding a third or a fourth daily brushing has relatively little effect: 1.06/1.03 are the ratios for the mean/median of the second to third brushing, and 1.11/1.55 are the ratios for the mean/median of the third to fourth brushing. But the fifth daily brushing again produces a noticeable drop in the index (the ratio for the fourth to fifth brushing is 4.68

for the mean and 2.5 for the median). The data for the sixth daily brushing were based on examination of only two persons (17).

Table 13 analyzes the effects of smoking on periodontal disease. Three categories of smoking were used for classifying examinees: those who had never smoked, those who had smoked in the past and had since quit, and those who were still smoking. From the data in Table 13, it can be seen that smoking has both a current and permanent effect. That is, among those who had previously smoked there is an elevated PI score relative to those who never smoked, but the elevation was slight compared to that for those currently smoking. The ratio of mean/median PI scores of smokers to nonsmokers was 1.53/2.19 (17).

E. Edentulism

A person who has lost all his or her teeth is called edentulous. This condition increases with advancing age and occurs in approximately half of the population over the age of 65. It is more prevalent among the white population than the black.

Table 14 lists edentulous people by race, sex, age, and degree of edentulism. An analysis between these categories for totally edentulous persons (i.e., those with both arches edentulous) can be found in Table 15. Note that most of the racial differences for edentulism for all ages (69 percent higher rates for whites) disappear with age until there is only a 9 percent difference between the races among the elderly. It is also true that females have higher edentulism rates than do males, but the sexual difference between the races

females have rates that are almost three times those of black males, and those rates only drop to twice those of black males among the elderly (18).

The highest differential ratio comes from comparing white and black males, for whom the ratio is 3.27, and that ratio drops to only 1.62 among the elderly. Finally, although white females have 27 percent more total edentulism than do black females, there is an inversion among the elderly, where black females have higher edentulism rates than do white females.

Table 16 shows the change in edentulism rates that occurred over a 13-to-14-year period, from which we can see that white edentulism rates have been dropping rapidly. At that rate of fall, the total and female racial differences may have disappeared already, but the differential between white and black males may not disappear until the turn of the century (19).

Edentulism is also related to other demographic variables. For example, it decreases as socioeconomic standing increases (Table 17). The finding that individuals of low income and education suffer disproportionately from this condition is somewhat expected from the prior determinations of this section. They are found to have high susceptibility to the more severe forms of periodontal disease, which is the most important factor in tooth loss after the middle years of life (20).

There is also a relationship between edentulism and utilization of dental health

people who do not use dental services, or whether it is because edentulous persons no longer have to have dental visits, is not clear.

The lower proportion of edentulous adults among the black population relative to white population is not fully explainable in light of the other dental health status measures presented here. Though blacks have been shown to have greater resistance to tooth decay, their demonstrated lower levels of periodontal health and oral health would seemingly enhance the probability of total loss.

F. Oral Hygiene

The technique utilized by the National Health Examination Survey to determine the status of its subjects' oral hygiene was based on the judgment of a dental examiner using three measures: a Simplified Oral Hygiene Index (OHI-S), a Simplified Debris Index (DI-S), and a Simplified Calculus Index (CI-S).

The first of these indexes is in Table 18, from which it can be seen that blacks have an appreciably higher index than do whites (black-to-white ratio = 1.67), as do males in comparison to females (male-to-female ratio = 1.35), but the racial differences are much greater than the sexual differences. The differential between the races among

males (1.60) is less than the differential between the races among females (1.79). The sexual differentials are also greater among whites (white female to white male ratio = 1.38) than among blacks (black female to black male ratio = 1.24). Although the oral hygiene index increases with age, the increase is more rapid among the categories with poor oral hygiene (blacks and males). That is, the differentials in lower age brackets are slighter, and increase with age (15).

Tables 19 and 20 contain the data for the Debris and Calculus Indexes, arranged by the same variables. From these tables it can be seen that the discussion above applies to these indexes as well (15).

Table 1

Comparison of studies reporting dental services utilization data.

Study Conducted By:	Year(s) in Which Study was Conducted																							
		1928-	1935-		1949-							1957-				1963-								
	<1930	1931	1936	1949	1951	1950	1952	1953	1954	1955	1958	1958	1960	1963	1964	1965	1968	1969	1973	1974	1975	1976	1977	1981
Richards	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(Estimate)	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CCMC	—	28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nat'l Hlth Survey	—	—	33	—	—	—	—	—	—	—	37	—	—	—	43	—	—	4	49	—	—	—	·	
ADA	—	—	—	40	—	—	42	—	—	45	—	47	—	—	—	—	—	—	—	—	49	50	49	50	53
HIF	—	—	—	—	—	—	—	34	—	—	—	37	—	38	—	—	—	—	—	—	—	—	—	—
GALLUP	—	—	—	—	—	37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NORC	—	—	—	—	—	—	—	—	—	49	—	—	46	—	—	46	48	—	—	—	—	—	—	—
HIS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	61	—	—	—
KOOS	—	—	—	—	—	—	—	—	36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Larson &	—	—	—	—	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sutton	—	—	—	—	38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Note: Entries are percentage of respondents having at least one dental visit within the year reported.
Source: "Utilization of Dental Services by Rural People in Selected New York Counties." Hay, D. G., Larson, O. F., and Sutton, D. In *Journal of the American Dental Association*, 47, 423-430, 1953.

Table 2

Dental visits and interval since last visit, according to selected patient characteristics: United States, 1964, 1976, and 1981.

[Data are based on household interviews of a sample of the civilian noninstitutionalized population]

| Selected characteristic | Dental visits | | | Interval since last dental visit | | | | | | | | | Never visited dentist | | |
| | | | | Less than 1 year | | | 1 year-less than 2 years | | | 2 years or more | | | | | |
	1964	1976	1981	1964	1976	1981	1964	1976	1981	1964	1976	1981	1964	1976	1981
	Number per person			Percent of population											
Total [1,2,3]	1.6	1.6	1.7	42.0	48.7	50.0	12.8	13.0	13.3	28.1	26.4	24.8	15.6	10.8	10.9
Age															
Under 17 years	1.4	1.5	1.6	41.6	50.1	50.0	9.1	10.8	10.8	6.3	8.3	8.0	42.6	29.9	30.4
Under 6 years	0.5	0.5	0.6	16.5	21.2	21.7	2.3	3.5	3.5	0.6	0.7	1.0	80.4	74.2	73.4
6-16 years	2.0	1.9	2.2	56.9	63.2	64.7	13.2	14.1	14.5	9.8	11.7	11.6	19.6	10.0	8.1
17-44 years	1.9	1.7	1.7	50.0	53.7	54.2	17.2	16.8	17.3	27.8	26.2	25.1	3.2	2.1	1.9
45-64 years	1.7	1.8	1.8	38.4	46.5	49.6	13.1	12.3	12.5	45.5	39.3	36.2	1.3	0.8	0.6
65 years and over	0.8	1.2	1.5	20.8	29.7	34.6	7.7	8.0	8.0	66.8	60.9	56.1	1.5	0.7	0.5
Sex [1]															
Male	1.4	1.5	1.6	40.0	46.7	47.9	13.0	13.2	13.6	28.8	27.8	26.1	16.1	11.2	11.2
Female	1.7	1.7	1.8	43.9	50.6	52.0	12.5	12.9	12.9	27.6	25.1	23.5	15.1	10.6	10.6
Race [1,4]															
White	1.7	1.7	1.8	44.7	51.0	52.2	12.9	12.7	12.9	27.3	25.4	23.7	13.8	9.9	10.2
Black [5]	0.9	0.9	1.1	22.8	32.8	35.5	11.7	15.3	15.0	35.3	34.4	33.1	27.1	16.0	14.3
Family income [1,6]															
Less than $7000	0.9	1.1	1.1	25.8	36.1	37.0	10.7	12.8	13.5	34.6	33.6	33.3	27.0	16.7	15.5
$7,000-$9,999	0.9	1.2	1.3	29.2	36.6	37.3	12.5	14.3	14.5	34.3	33.2	32.8	22.0	15.1	14.3
$10,000-$14,999	1.4	1.3	1.4	39.1	40.6	42.3	13.7	13.0	14.0	30.0	31.6	30.0	16.1	13.9	12.9
$15,000-$24,999	1.9	1.4	1.7	49.6	46.5	50.1	13.4	14.2	14.0	24.9	27.3	24.4	11.0	11.2	10.7
$25,000 or more	2.8	2.1	2.2	63.3	60.8	63.5	12.2	12.4	12.0	16.6	18.9	16.2	7.0	6.8	7.3
Geographic region [1]															
Northeast	2.1	1.8	2.0	47.9	54.0	55.2	12.7	12.0	12.7	25.7	24.4	22.4	12.7	8.6	8.7
North Central	1.6	1.6	1.7	44.0	51.0	52.2	13.0	12.8	12.7	28.8	26.0	24.6	13.0	9.6	9.6
South	1.2	1.3	1.5	35.0	42.6	44.7	12.0	13.3	13.3	30.0	29.5	28.1	20.8	13.5	12.7
West	1.8	1.8	1.7	43.3	50.0	50.3	13.8	14.2	14.7	27.5	23.9	22.0	14.5	10.7	11.8
Location of residence [1]															
Within SMSA	1.8	1.7	1.8	44.5	51.0	52.0	13.1	13.0	13.3	26.8	24.6	23.0	14.3	10.3	10.5
Outside SMSA	1.2	1.3	1.4	37.8	43.7	45.9	12.1	13.0	13.0	30.5	30.3	28.5	17.9	12.1	11.6

[1]Age adjusted by the direct method to the 1970 civilian noninstitutionalized population, using 4 age intervals.
[2]Includes all other races not shown separately.
[3]Includes unknown family income.
[4]In 1964 and 1976, the racial classification of persons in the National Health Interview Survey was determined by interviewer observation. In 1981, race was determined by asking the household respondent.
[5]1964 data are for all other races
[6]Family income categories for 1981. Adjusting for inflation, corresponding income categories in 1964 were: less than $2,000; $2,000-$3,999; $4,000-$6,999; $7,000-$9,999; and $10,000 or more; and, in 1976 were: less than $5,000; $5,000-$6,999; $7,000-$9,999; $10,000-$14,999; and $15,000 or more.
Source: Division of Health Interview Statistics, National Center for Health Statistics: Data from the National Health Interview Survey. In National Center for Health Statistics: Health, United States, 1983. DHHS Pub. No. (PHS) 84-1232. Public Health Service. Hyattsville, MD, December 1983.

Table 3

Average annual dental visits for all persons of Hispanic ancestry according to family income and age: United States, 1976-78.

Income and age	All persons of Hispanic Ancestry	Persons of Mexican-American Ancestry	Persons of Puerto Rican Ancestry	Persons of Cuban Ancestry	Persons of Other Spanish Ancestry
	Average Annual Percent of Persons with a Dental Visit in Past Year				
All family incomes[1]					
Age					
All ages	34.7	28.9 (1.20)	41.2 (0.84)	42.5 (0.82)	43.1 (0.81)
Under 45 years	35.3	29.2 (1.21)	42.5 (0.83)	47.8 (0.74)	44.1 (0.80)
45-64 years	34.5	29.7 (1.16)	35.7 (0.97)	39.4 (0.88)	42.5 (0.81)
65 years and over . .	23.6	19.5 (1.21)	28.6 (0.83)	22.1 (1.07)	30.0 (0.79)
Under $10,000					
Age					
All ages	28.7	21.7 (1.32)	40.2 (0.71)	37.4 (0.77)	37.1 (0.77)
Under 45 years	30.0	22.2 (1.35)	41.7 (0.72)	45.1 (0.67)	40.0 (0.75)
45-64 years	25.1	19.9 (1.26)	35.2 (0.71)	35.5 (0.71)	26.5 (0.95)
65 years	19.9	18.3 (1.09)	18.2 (1.09)	17.9 (1.11)	26.0 (0.77)
$10,000 or more					
Age					
All ages	41.5	37.2 (1.12)	43.9 (0.95)	47.1 (0.88)	48.7 (0.85)
Under 45 years	41.2	36.8 (1.12)	44.7 (0.92)	50.3 (0.82)	47.8 (0.86)
45-46 years	44.5	41.0 (1.09)	38.6 (1.15)	42.3 (1.05)	55.7 (0.80)
65 years and over . .	32.5	25.0 (1.30)	45.5 (0.71)	31.3 (1.04)	41.4 (0.79)

[1]The "all family incomes" category includes unknown income.

Note: Entries in parentheses are ratios of all Hispanics of that subgroup. Thus, ratios over 1.0 represent lower proportions of dental visits for that subgroup.

Source: Compiled by CHESS based on tables found in National Center for Health Statistics, National Health Interview Survey, *Classification Issues in Measuring the Health Status of Minorities* July 1980.

Table 4

Number of dental visits per year per person for persons of Spanish ancestry by type of Spanish ancestry according to family income and age: United States, 1976-78.

Family income and age	Persons of Spanish Ancestry				
	Total	Type of Spanish Ancestry			
		Mexican American	Puerto Rican	Cuban	Other Spanish
	Number of dental visits per person per year				
All incomes					
All ages	1.2	0.9	1.8	1.6	1.7
Under 45 years	1.2	0.9	1.6	1.9	1.7
45-64 years	1.5	1.2	2.2	1.3	1.8
65 years and over	1.0	0.4	4.8	0.3	1.3
Under $10,000					
All ages	0.9	0.6	1.4	1.4	1.3
Under 45 years	1.0	0.6	1.3	2.2	1.4
45-64 years	0.8	0.5	2.0	0.3	0.8
65 years and over	0.7	0.4	1.5	0.6	1.1
$10,000 or more					
All ages	1.6	1.2	2.0	1.7	2.1
Under 45 years	1.5	1.2	1.8	1.7	2.0
45-64 years	2.2	1.8	2.9	2.2	2.9
65 years and over	1.2	0.4	6.0	—	2.2

Note: Entries in parentheses are ratios of all Hispanics to Hispanics of that subgroup. Thus, ratios over 1.0 represent lower proportions of dental visits.

Source: Compiled by CHESS based on tables found in National Center for Health Statistics, National Health Interview Survey. *Classification Issues in Measuring the Health Status of Minorities*, July 1980.

Table 5

Percent of the population with no dental visits in the past 2 years, by poor and nonpoor status, color, and age: United States, selected years 1964-81.
(Data are based on household interviews of the civilian, noninstitutionalized population).

Age and year	Total		White		All other	
	Poor	Nonpoor	Poor	Nonpoor	Poor	Nonpoor
	Percent of persons with no dental visits					
All ages						
1964	65.8	40.0	62.5	38.4	74.7	58.6
1973	56.5	34.6	55.3	33.2	60.3	48.8
1976	52.8	32.6	52.3	31.4	54.6	44.9
1978	52.2	32.1	51.0	31.0	55.6	42.5
1979	52.7	32.5	52.6	31.2	53.1	44.0
1980	51.2	32.7	50.6	31.5	53.0	42.6
1981	51.4	32.8	50.8	31.5	53.1	42.7
Under 17 years						
1964	73.2	44.7	66.6	42.5	82.9	66.3
1973	58.3	37.2	55.8	35.2	62.2	55.6
1976	52.9	35.0	52.5	33.5	53.6	47.6
1978	51.6	35.2	49.9	33.7	54.3	47.3
1979	50.4	36.0	50.0	34.4	50.8	47.6
1980	51.9	36.4	51.1	35.1	53.2	45.2
1981	52.6	36.6	52.1	35.0	53.5	47.1
17-44 years						
1964	46.3	30.1	40.2	28.5	61.3	48.1
1973	38.9	28.1	35.9	26.8	48.5	40.6
1976	37.4	27.0	35.1	25.7	45.1	39.3
1978	36.3	26.6	33.0	25.4	45.8	37.1
1979	36.6	26.8	34.9	25.5	41.5	37.9
1980	34.9	26.5	32.3	25.3	42.3	36.8
1981	35.6	26.8	32.8	25.4	43.1	37.1
45-64 years						
1964	66.7	43.6	65.0	42.6	72.6	59.7
1973	61.5	38.3	60.5	37.4	65.1	51.1
1976	60.2	35.8	59.2	34.7	64.0	49.6
1978	59.7	34.3	58.9	33.5	62.3	43.8
1979	60.6	34.7	58.9	33.4	66.2	49.5
1980	57.5	34.4	56.6	33.2	60.2	47.5
1981	59.7	34.5	60.2	33.5	58.1	45.0
65 years and over						
1964	78.5	63.5	78.0	62.9	83.0	76.6
1973	72.8	55.9	72.0	54.7	79.2	76.8
1976	69.8	51.8	69.4	50.6	73.3	73.1
1978	69.4	50.6	68.1	49.8	78.1	64.2
1979	70.7	49.3	70.1	48.5	74.7	62.0
1980	70.4	50.9	69.8	49.8	74.3	68.3
1981	70.0	49.9	69.3	48.9	73.7	65.3

Note: Definitions of poor and nonpoor are based on family income:

	Poor	Nonpoor
1964	under $3,000	$3,000 and over
1973	under $6,000	$6,000 and over
1976	under $7,000	$7,000 and over
1978	under $7,000	$7,000 and over
1979	under $7,000	$7,000 and over
1980	under $7,000	$7,000 and over
1981	under $7,000	$7,000 and over

Source: Unpublished data from the National Health Interview Survey, National Center for Health Statistics. In "Changes in Morbidity, Disability, and Utilization Differentials between the Poor and Nonpoor: Data from Health Interview Survey: 1964 and 1973," Ronald W. Wilson and Elijah L. White. Reprinted from Medical Care, August 1977, Vol. XV, No. 8, U.S.A.

Table 6

Average number of decayed (D), missing (M), and filled (F) permanent teeth per person, among adults 35-74 years of age, by sex and age: United States, 1960-62 and 1971-74.

Sex and age	DMF teeth		D teeth		M teeth		F teeth	
	1960-62	1971-74	1960-62	1971-74	1960-62	1971-74	1960-62	1971-74
	Average number of affected teeth per person							
Both sexes, 35-74 years	19.1	20.2	1.2	1.0	11.2	11.0	6.7	8.2
Men								
35-74 years	18.5	19.5	1.2	1.0	11.2	10.5	6.1	8.0
35-44 years	17.2	18.4	1.3	1.2	8.1	8.4	7.8	8.8
45-54 years	18.0	19.2	1.3	1.0	10.9	9.9	5.8	8.3
55-64 years	20.4	20.7	1.1	1.0	14.7	12.4	4.6	7.3
65-74 years	22.3	21.8	0.8	0.7	18.1	15.6	3.5	5.5
Women								
35-74 years	19.7	20.8	1.1	0.9	11.3	11.4	7.3	8.5
35-44 years	18.8	20.0	1.3	1.1	9.2	9.8	8.3	9.2
45-54 years	19.6	20.5	1.1	0.9	11.5	11.1	7.0	8.5
55-64 years	21.9	21.5	0.8	0.8	14.8	12.6	6.3	8.1
65-74 years	22.8	22.5	0.5	0.5	16.8	14.7	5.5	7.2

Note: Filled teeth include only teeth with satisfactory fillings. Decayed teeth include not only teeth with caries but also filled teeth with carious lesions or defective fillings. Missing teeth include both missing and nonfunctional teeth. DMF is the total of these 3 categories.

Source: National Center for Health Statistics. Decayed, Missing, and Filled Teeth Among Persons 1-74 Years, United States. *Vital and Health Statistics*, Series 11, No. 223, DHHS Pub. No. (PHS) 81-1673. August 1981.

Table 7

Average number of decayed (D), missing (M), and filled (F) permanent teeth per person among persons aged 1-74 years, by race, sex, and age United States, 1971-74.

Sex and age	DMF teeth			D Teeth			M teeth			F teeth		
	Total[1]	White	Black	Total[1]	White	Black	Total[1]	White	Black	Total[1]	White	Black
Both sexes	Average number of teeth											
All ages, 1-74 years ...	13.0	13.5	9.6	1.3	1.2	2.3	5.3	5.3	5.6	6.4	7.0	1.7
1-5 years	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	—
6-11 years	1.7	1.7	1.6	0.7	0.6	0.9	0.1	0.1	0.3	0.8	0.9	0.5
12-17 years	6.2	6.3	5.5	1.8	1.6	3.1	0.6	0.5	1.2	3.7	4.1	1.3
18-44 years	14.9	15.3	12.4	1.7	1.5	3.2	4.9	4.7	6.6	8.3	9.1	2.6
45-64 years	20.4	21.2	14.2	0.9	0.9	1.4	11.3	11.4	11.2	8.1	8.9	1.7
65-74 years	22.2	22.5	19.9	0.6	0.5	1.1	15.2	14.9	17.8	6.4	7.0	1.0
Male												
All ages, 1-74 years ...	12.4	12.9	8.9	1.4	1.3	2.2	4.9	4.9	5.2	6.1	6.7	1.5
1-5 years	0.1	0.1	0.1	0.1	0.1	0.1	—	—	—	0.0	0.0	—
6-11 years	1.6	1.6	1.5	0.7	0.7	0.9	0.2	0.1	0.3	0.7	0.8	0.3
12-17 years	5.7	5.8	5.1	1.7	1.5	3.0	0.5	0.4	0.9	3.5	3.9	1.2
18-44 years	14.4	14.8	11.8	1.8	1.6	3.2	4.5	4.4	6.1	8.1	8.8	2.5
45-64 years	19.8	20.7	12.7	1.0	1.0	1.1	11.0	11.1	10.4	7.9	8.7	1.2
65-74 years	21.9	22.3	19.5	0.7	0.6	1.2	15.7	15.5	17.5	5.5	6.1	0.8
Female												
All ages 1-74 years	13.5	14.0	10.3	1.3	1.1	2.4	5.6	5.6	6.0	6.6	7.3	1.9
1-5 years	0.1	0.1	0.2	0.1	0.0	0.2	0.0	0.0	0.0	—	—	—
6-11 years	1.7	1.7	1.8	0.7	0.6	1.0	0.1	0.1	0.2	1.0	1.0	0.6
12-17 years	6.6	6.7	6.0	1.9	1.7	3.1	0.8	0.7	1.5	3.9	4.4	1.3
18-44 years	15.3	15.7	12.8	1.6	1.4	3.1	5.2	5.0	7.0	8.5	9.4	2.7
45-64 years	20.9	21.6	15.7	0.9	0.8	1.7	11.7	11.7	11.9	8.3	9.1	2.2
65-74 years	22.5	22.7	20.3	0.5	0.4	0.9	14.8	14.5	18.3	7.2	7.7	1.1

[1]Includes data for "other races," which are not shown separately

Note: Filled teeth include only those with satisfactory fillings. Decayed teeth include not only teeth with caries but also filled teeth with carious lesions or defective fillings. Missing teeth include both missing and nonfunctional teeth. DMF is the total of these 3 categories

Edentulous persons (lost all their natural teeth) were included in this table

Source: National Center for Health Statistics: Basic Data on Dental Examination Findings of Persons 1-74 years. United States, 1971-1974, *Vital and Health Statistics*, Series 11, No. 214 DHEW Pub No (PHS) 79-1662 May 1979

Table 8

Female-to-male ratios of average decayed (D), missing (M), and filled (F) teeth, by race.

	D Teeth	M Teeth	F Teeth
Total	0.93	1.14	1.08
White	0.85	1.14	1.09
Black	1.09	1.15	1.27

Source: Tabulated by CHESS from data contained in Table 7

Table 9

White-to-black ratios of average decayed (D), missing (M), and filled (F) teeth, by sex.

	D Teeth	M Teeth	F Teeth
Male	0.59	0.94	4.47
Female	0.46	0.93	3.84

Source: Tabulated by CHESS from data contained in Table 7.

Table 10

Average Periodontal Index (PI) for persons aged 6-74 years, by race, sex, and age: United States 1971-74.

Sex and age	Total[1]	White	Black
Both sexes		PI	
All ages, 6-74 years	0.83	0.76	1.28
6-11 years	0.11	0.11	0.12
12-17 years	0.32	0.29	0.53
18-44 years	0.76	0.69	1.26
45-64 years	1.57	1.42	2.78
65-74 years	2.34	2.17	3.82
Male			
All ages, 6-74 years	0.96	0.88	1.52
6-11 years	0.14	0.14	0.15
12-17 years	0.38	0.35	0.58
18-44 years	0.91	0.83	1.57
45-64 years	1.79	1.61	3.21
65-74 years	2.81	2.61	4.20
Female			
All ages 6-74 years	0.70	0.65	1.07
6-11 years	0.08	0.08	0.10
12-17 years	0.26	0.22	0.47
18-44 years	0.61	0.56	1.02
45-64 years	1.37	1.24	2.37
65-74 years	1.96	1.83	3.40

[1]Includes data for "other races," which are not shown separately.
Note: Edentulous persons (lost all their natural teeth) have been included in this table
Source: National Center for Health Statistics: Basic Data on Dental Examination Findings of Persons 1-74 years. United States, 1971-1974, *Vital and Health Statistics*, Series 11, DHEW Pub. No. (PHS) 79-1662. May 1979.

Table 11

Racial/sexual ratios of periodontal indexes.

Female-to-male ratios		White-to-black ratios	
White	Black	Male	Female
0.74	0.70	0.58	0.61

Source: Tabulated by CHESS Staff from data contained in Table 10

Table 12

Average and median periodontal index (PI) scores per person among persons ages 25-74 years, by toothbrushing frequency, with standard errors and sample sizes: United States, 1971-74.

Daily tooth-brushing frequency	Number examined	Mean PI	Median PI	Standard error of mean
All frequencies	2,903	1.27	0.41	0.05
Zero	152	3.54	4.05	0.32
One.....................	1,180	1.40	0.57	0.06
Two.....................	1,294	1.05	0.32	0.06
Three	237	0.99	0.31	0.10
Four	28	0.89	0.20	0.04
Five.....................	10	0.19	0.08	0.13
Six.......................	2	0.00	0.00	0.00

Source: National Center for Health Statistics: Diet and Dental Health, A Study of Relationships: United States, 1971-1974. DHHS Pub No (PHS) 82-1675. Series 11, Data from the National Health Survey; No. 225. Hyattsville, MD. January 1982.

Table 13

Average and median periodontal index (PI) scores per person among persons aged 25-74 years, by smoking history, with standard errors and sample sizes: United States, 1971-74.

Smoking history	Number examined	Mean PI	Median PI	Standard error of mean
All subjects ...	2,948	1.28	0.42	0.05
Never	1,104	1.01	0.31	0.07
Past	516	1.10	0.34	0.08
Now	1,328	1.55	0.68	0.08

Source: National Center for Health Statistics: Diet and Dental Health, A Study of Relationships: United States, 1971-1974. DHHS Pub No. (PHS) 82-1675. Series 11, Data from the National Health Survey; No. 225. Hyattsville, MD, January 1982.

Table 14

Percent distribution of adults 18-74 years of age, by number of edentulous arches, according to race, sex, and age, with standard errors of the percent: United States, 1971-74.

Sex and age	Total	With no arch edentulous	With 1 arch edentulous	With both arches edentulous	Sex and age	Total	With no arch edentulous	With 1 arch edentulous	With both arches edentulous
White					Black				
Both sexes		Percent distribution			Both sexes		Percent distribution		
All ages, 18-74 years	100.0	75.2	9.4	15.4	All ages, 18-74 years	100.0	82.8	8.1	9.1
18-24 years	100.0	98.0	1.3	*0.7	18-24 years	100.0	98.5	*1.4	*0.1
25-34 years	100.0	91.3	5.4	3.3	25-34 years	100.0	92.4	*4.7	*2.9
35-44 years	100.0	79.8	10.8	9.5	35-44 years	100.0	82.2	*11.6	6.2
45-54 years	100.0	69.3	13.6	17.1	45-54 years	100.0	83.9	*8.8	*7.3
55-64 years	100.0	51.1	14.2	34.7	55-64 years	100.0	67.0	*13.3	19.8
65-74 years	100.0	38.8	15.2	45.9	65-74 years	100.0	40.7	17.1	42.3
Men					Men				
All ages, 18-74 years	100.0	77.3	8.2	14.4	All ages, 18-74 years	100.0	88.9	*6.7	4.4
18-24 years	100.0	98.0	*1.2	*0.8	18-24 years	100.0	99.7	*0.3	—
25-34 years	100.0	92.6	*4.4	*2.9	25-34 years	100.0	95.8	*4.2	—
35-44 years	100.0	83.4	8.5	8.1	35-44 years	100.0	88.6	*8.0	*3.4
45-54 years	100.0	72.1	11.3	16.6	45-54 years	100.0	92.2	*6.1	*1.7
55-64 years	100.0	52.4	13.9	33.6	55-64 years	100.0	75.3	*15.3	*9.4
65-74 years	100.0	39.4	15.5	45.1	65-74 years	100.0	56.0	16.2	27.9
Women					Women				
All ages, 18-74 years	100.0	73.2	10.4	16.3	All ages, 18-74 years	100.0	78.1	9.1	12.8
18-24 years	100.0	97.9	*1.4	*0.6	18-24 years	100.0	97.6	*2.3	*0.1
25-34 years	100.0	90.0	6.3	3.6	25-34 years	100.0	89.8	*5.1	*5.1
35-44 years	100.0	76.3	12.9	10.8	35-44 years	100.0	77.2	14.4	*8.3
45-54 years	100.0	66.8	15.7	17.5	45-54 years	100.0	76.8	*11.2	*12.0
55-64 years	100.0	49.9	14.4	35.6	55-64 years	100.0	60.3	*11.6	*28.1
65-74 years	100.0	38.4	15.1	46.5	65-74 years	100.0	29.2	17.7	63.0

Note: Where an asterisk (*) is printed next to the cell value, the number of cases for that cell was less than 30 or the relative standard error for the cell value was 26 percent or more.
Source: Compiled by CHESS from National Center for Health Statistics: *Decayed, Missing and Filled Teeth Among Persons 1-74 years: United States* DHHS Pub. No. (PHS) 81-1673. Series 11, Data from the National Health Survey; No. 223. Tables 10 and 11, pp. 28-29
Hyattsville, MD, August 1981

Table 15

Comparison of edentulism ratios as a function of race, sex, and age.

Comparison Categories	Ratios	
	All ages	65-74 years of age
White to black	1.69	1.09
White female to white male	1.13	1.03
Black female to black male	2.91	1.90
White male to black male	3.27	1.62
White female to black female	1.27	0.88

Source: Tabulated by CHESS from data contained in Table 14.

Table 16

Percent of white and all other edentulous persons 45 years and over in the population, by sex and age: United States, July 1957-June 1958 and 1971.

Sex and age	White		All other[1]	
	July 1957-June 1958	1971	July 1957-June 1858	1971
Both sexes	Percent			
45 years and over	39.4	32.7	23.3	24.1
45-64 years	30.3	23.9	17.0	17.2
65 years and over	60.6	51.4	43.1	42.9
Male				
45 years and over	37.4	31.5	19.3	18.7
45-64 years	29.3	23.7	13.5	12.4
65 years and over	57.3	50.3	37.5	35.5
Female				
45 years and over	41.3	33.8	27.1	29.1
45-64 years	31.3	24.1	20.3	21.3
65 years and over	63.3	52.3	48.2	48.7

[1]Figures for black persons have been combined with those for persons of races other than white to facilitate comparison between the 1971 estimates and those obtained in the July 1957-June 1958 survey
Source: National Center for Health Statistics. Edentulous Persons, United States, 1971 DHEW Pub No (HRA) 74-1516. Series 10, Data from the National Health Survey; No 89 Rockville, MD, June 1974

Table 17

Percent of edentulous persons by income level and age, U.S., 1971.

Age, Years	Family Income $						
	<3,000	3,000-4,999	5,000-6,999	7,000-9,999	10,000-14,999	15,000 or More	All Incomes
All Ages	25.7	18.1	11.9	9.7	7.0	5.2	11.2
Under 25	*	*	*	*	*	*	0.1
25-44	7.9	8.0	7.6	7.7	5.8	3.7	6.3
45-64	33.5	32.4	28.0	27.4	20.7	11.7	23.3
65 or More	58.5	53.2	46.2	47.3	42.0	35.2	50.7

Percent of edentulous persons by educational level and age, U.S., 1971.

Age, Years	Educational Level				
	All Levels	<9 years	9-11 Years	12 Years	13 Years or More
All Ages (Yrs.)	11.2	36.9	17.6	11.1	5.9
Under 25	0.1	*	*	0.5	*
25-44	6.3	11.3	11.4	6.1	1.6
45-64	23.3	34.3	28.7	19.0	10.6
65 or More	50.7	58.0	51.1	42.4	30.8

*Figure does not meet standards of reliability or precision
Source: National Center for Health Statistics Edentulous Persons, United States, 1971. DHEW Pub. No. (HRA) 74-1516. Series 10, Data from the National Health Survey No. 89 Rockville, MD, June 1974.

Table 18

Average Simplified Oral Hygiene Index (OHI-S) for persons aged 6-74 years, by race, sex, and age, United States: 1971-74.

Sex and age	Total[1]	White	Black
Both sexes		OHI-S	
All ages, 6-74 years	100	0.93	1.56
6-11 years	0.75	0.72	0.88
12-17 years	0.89	0.82	1.34
18-44 years	1.01	0.93	1.62
45-64 years	1.23	1.10	2.27
65-74 years	1.43	1.33	2.56
Male			
All ages, 6-74 years	1.16	1.08	1.73
6-11 years	0.80	0.78	0.90
12-17 years	1.00	0.92	1.43
18-44 years	1.16	1.09	1.82
45-64 years	1.46	1.32	2.64
65-74 years	1.76	1.64	2.84
Female			
All ages, 6-74 years	0.86	0.78	1.40
6-11 years	0.69	0.66	0.86
12-17 years	0.80	0.72	1.25
18-44 years	0.86	0.77	1.46
45-64 years	1.00	0.89	1.88
65-74 years	1.16	1.08	2.19

[1]Includes data for "other" races, which are not shown separately
Note: Those persons with missing data or without at least two of the six teeth used for OHI-S have been excluded from this table.
Source: Abstracted by CHESS from National Center for Health Statistics: Basic Data on Dental Examination Findings of Persons 1-74 Years: United States, 1971-1974. DHEW Pub. No. (PHS) 79-1662. Series 11, Data from the National Health Survey, No 214. Hyattsville, MD, May 1979.

Table 19

Average Simplified Debris Index (DI-S) for persons aged 6-74 years, by race, sex, and age: United States, 1971-74.

Sex and age	Total[1]	White	Black
Both sexes		DI-S	
All ages, 6-74 years	0.66	0.62	0.94
6-11 years	0.72	0.70	0.84
12-17 years	0.74	0.70	0.98
18-44 years	0.61	0.57	0.89
45-64 years	0.64	0.60	1.06
65-74 years	0.75	0.71	1.23
Male			
All ages, 6-74 years	0.75	0.71	1.02
6-11 years	0.78	0.76	0.86
12-17 years	0.82	0.79	1.02
18-44 years	0.69	0.66	0.98
45-64 years	0.76	0.70	1.22
65-74 years	0.92	0.86	1.41
Female			
All ages, 6-74 years	0.57	0.53	0.86
6-11 years	0.66	0.63	0.82
12-17 years	0.65	0.60	0.94
18-44 years	0.53	0.48	0.82
45-64 years	0.53	0.49	0.89
65-74 years	0.61	0.58	1.01

[1]Includes data for "other" races, which are not shown separately
Note: Those persons with missing data or without at least two of the six teeth used for DI-S have been excluded from this table.
Source: National Center for Health Statistics: Basic Data on Dental Examination Findings of Persons 1-74 Years, United States. 1971-1974. DHEW Pub. No. (PHS) 79-1662. Series 11, Data from the National Health Survey, No. 214, Hyattsville, MD, May 1979.

Table 20

Average Simplified Calculus Index (CI-S) for persons aged 6-74 years, by race, sex, and age with standard errors: United States, 1971-74.

Sex and age	Total[1]	White	Black	Total[1]	White	Black
Both sexes		CI-S			Standard error	
All ages, 6-74 years	0.35	0.32	0.62	0.02	0.02	0.03
6-11 years.	0.03	0.03	0.04	0.01	0.01	0.01
12-17 years.	0.16	0.12	0.36	0.02	0.02	0.05
18-44 years.	0.40	0.36	0.73	0.02	0.02	0.03
45-64 years.	0.58	0.51	1.21	0.03	0.03	0.07
65-74 years.	0.68	0.62	1.32	0.04	0.04	0.11
Male						
All ages, 6-74 years	0.41	0.37	0.72	0.02	0.02	0.03
6-11 years.	0.03	0.02	0.04	0.01	0.01	0.01
12-17 years.	0.17	0.13	0.41	0.02	0.02	0.07
18-44 years.	0.47	0.43	0.84	0.03	0.03	0.04
45-64 years.	0.70	0.62	1.42	0.04	0.04	0.11
65-74 years.	0.84	0.78	1.43	0.04	0.04	0.13
Female						
All ages, 6-74 years	0.30	0.26	0.54	0.02	0.02	0.03
6-11 years.	0.03	0.03	0.05	0.01	0.01	0.02
12-17 years.	0.14	0.12	0.32	0.02	0.02	0.05
18-44 years.	0.33	0.29	0.64	0.02	0.02	0.04
45-64 years.	0.47	0.40	0.99	0.03	0.03	0.11
65-74 years.	0.55	0.50	1.18	0.05	0.05	0.13

[1]Includes data for "other" races, which are not shown separately

Note: Those persons with missing data or without at least two of the six teeth used for CI-S have been excluded from this table

Source: National Center for Health Statistics: Basic Data on Dental Examination Findings of Persons 1-74 Years, United States, 1971-1974, DHEW Pub. No. (PHS) 79-1662, Series 11, Data from the National Health Survey, No. 214, Hyattsville, MD, May 1979.

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Chapter IX   Preventive Health

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Chapter IX   Preventive Health

Overview

In this chapter the preventive health practices of the disadvantaged are compared with those of the rest of the population. For purposes of this analysis, two areas of preventive health are included. First, data pertaining to preventive medical care, including routine physical examinations, preventive medical procedures, and prenatal care, are discussed. Second, nonmedical personal habits that affect health are examined.

The impetus for promoting preventive health appears to be stronger today than ever before. The medical community is moving toward a new perspective on health—prevention and early detection of disease—in addition to ordinary diagnosis and treatment. The Federal Government has identified preventive health objectives to be reached by the year 1990 and, where appropriate, these are included throughout the chapter.

One of the most telling measures of the population's enthusiasm for preventive care is the number of people who obtain a routine general checkup each year. Whether or not individuals obtain regular checkup examinations seems to be most related to education. A far greater proportion of the more educated had general checkups during 1980. More females than males reported having had an exam. The proportions were about equal for blacks and whites who had had a routine examination in the past year.

Racial, sex, and income differentials were greater than age differentials for medical

procedures selectively administered during general examinations. With the exception of female internal examinations, a larger proportion of blacks than whites, and males than females, received all the other medical procedures during a general examination. For about half of the procedures, the non-poor and the poor very much resembled each other in their receipt of care; however a greater proportion of the non-poor were administered the remaining procedures.

The proportion of pregnant women beginning prenatal care in their first trimester of pregnancy varies considerably among the population's ethnic and racial subgroups, a much higher proportion of white mothers began prenatal care in their first trimester compared to blacks and Hispanics. The median number of physician visits for prenatal care was one visit higher for whites than blacks, and two visits higher for whites than Hispanics. Prenatal care among the various Hispanic population groups varied widely, but Puerto Rican mothers consistently had the lowest rates of prenatal care visits, with medical care sought late into their pregnancies, and Cuban women had the highest number of visits, with over 80 percent of the women making physician visits in the first trimester. Prenatal care includes several technologically advanced interventions that are primarily meant to assess fetal well-being. The most prevalent ones include amniocentesis, ultrasound, and xrays. Among mothers 35 years of age and over with live births during 1980, almost twice as many white mothers as black mothers had amniocentesis during

pregnancy; approximately one third of *all* mothers had ultrasound, with about equal distribution between white and black mothers; only about 13 percent of mothers received at least one medical xray during pregnancy, and about 5 percent of these mothers potentially could have instead received ultrasound.

The vast majority of children are immunized against the major childhood diseases by the time they enter school. The main concern is protecting preschool children, especially the residents of large inner cities. These usually include a preponderance of blacks and the poor.

A great majority of Americans assessed their health in 1981 as good or excellent. Data from the National Health Interview Survey reported that of the white population, only 10.8 percent reported fair or poor health for 1981, compared with 19.7 percent for the black population.

The smoking, diet, and drinking habits of the disadvantaged are compared with those of the rest of the population. Proportionately fewer adults were smoking in 1980 than in the past 15 years. The most significant decrease in smoking occurred among men. In 1980, a greater proportion of black males smoked compared to white males; the proportions of smokers among black females and white females were about equal. The *numbers* of cigarettes smoked by these groups, however, differed

widely. More blacks smoked than whites, but blacks smoked far fewer cigarettes per day than whites.

Alcohol consumption has not shown the same decline as has cigarette smoking. Presently, proportionately more whites than blacks consume alcohol, but trends in the data indicate that blacks are approaching the same alcohol consumption levels as whites.

More females than males are obese or overweight. This is particularly true among black females who tend toward large weight gains following adolescence.

A. Introduction

Health care in this country is still, for the most part, organized along curative and reparative lines. Cure rates and repair rates have become the conventional criteria for success. We have invested most of our attention and an overwhelming share of our resources into improving the availability and quality of treatment and rehabilitation services. . . . The time has come for us to turn our attention as a Nation to the preservation of good health, the promotion and enhancement of healthful lifestyles, and the prevention of disease and disability (1, p. iv).

It should not be inferred from the recent popularity of preventive medicine that the subject has been neglected or ignored in the past. Because of concerted efforts theretofore in this area, poliomyelitis, malaria, cholera,

tuberculosis, etc., are now rare diseases. With today's elevated interest in prevention, there is the prospect of also eliminating or greatly reducing the incidence of heart disease, cancer, stroke, and accidents, which are today the major causes of death and chronic debilitation.

"By definition in the context of health, prevention requires action to reduce or eliminate risk of exposure that would increase the chances for an individual or group to incur disease, disability, or untimely death. Prevention also includes discovering and controlling abnormal conditions soon enough to minimize dangerous consequences." (2, p. 267).

The Federal Government has recognized the need for action, and has developed specific action steps toward realizing the five major goals for achieving better health first published in 1979 in *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention.* That publication also identified 15 priority areas of health promotion, health protection, and disease prevention in which more programmatic efforts would lead to the attainment of the major goals. In 1980, the Public Health Service published *Promoting Health/Preventing Disease: Objectives for the Nation,* in which 226 objectives are identified and grouped within the 15 specific subject areas. These two publications culminated in an action document entitled *Implementation Plans for Attaining the Objectives for the Nation.* "This document represents yet

another step on the road toward realization of the goals and the objectives. Each objective presented in this volume is accompanied by an implementation plan that sets out specific action steps Federal agencies will be taking to contribute to their attainment. The objectives and their implementation plans are presented within each of the 15 priority areas identified . . ." (3, p. 3) When appropriate, this chapter cites the 1990 objectives for the health conditions we discuss.

The 1983 edition of *Health, United States* includes a prevention profile which gives a great deal of attention to these objectives. Of particular interest are current baseline data which, in turn, emphasize what needs to be accomplished in order to meet the 1990 objectives.

In this chapter the preventive health experience of the disadvantaged is compared with that of the rest of the population. The utilization of preventive medical services and nonmedical behavior patterns that are believed to affect health status are included.

The National Center for Health Statistics collects information regarding routine general checkup examinations, and selected medical procedures such as cardiograms, chest xrays, vision tests, and female internal exams. Demographic data are available to facilitate a comparison of the disadvantaged with the remainder of the population. Immunization levels are included in this chapter. Selected lifestyle patterns that affect health are also discussed.

B. Preventive Examinations
1. General Checkup Procedures

Health Interview Survey respondents regularly are asked if they visited a physician for a general checkup during the past 12 months. In Table 1, responses to this question by selected characteristics are presented.

Whether or not a person had a general checkup during the year appeared to be most related to education. Large differentials occurred among education groups. About 49 percent of persons with 16 years' or more education had yearly physical checkups, compared with 29.4 percent of persons with less than 9 years' education.

A larger proportion of females (44.4 percent) than males (33.8 percent) saw a physician for a general checkup during the year. The proportion of blacks who obtained a general examination through the year (42.2 percent) was very similar to the proportion of whites (41.3 percent).

In the first edition of this book, a table similar to Table 1 was presented. That table, using 1971 data, showed a general checkup to be highly related to race, income, and education. At that time, a larger proportion of whites (40 percent) than nonwhites (33 percent) obtained a checkup; a much larger proportion of persons in the highest reported income group (52 percent) had a yearly checkup than persons in the lowest reported income group (27 percent); and a far greater proportion of persons with the reported highest level of education compared with those with the reported lowest level of education had yearly checkups. Although the proportion of the general

population receiving preventive checkup examinations remained unchanged from 1971 to 1980, the changes among the subgroups were dramatic. Of the demographic variables that showed a differential effect for obtaining a checkup in 1971, race has been eliminated, and so has income (except for the lowest income level, less than $5,000). The remaining variable, then, is education level, and that variable shows signs of compressions of range that usually precede the disappearance of a variable of impact. Oddly enough, the sexual variable is the only demographic characteristic that showed an expansion of range, and that effect was achieved in two ways: a decrease in the proportion of males and an increase in the proportion of females who had preventive medical examinations.

A comment regarding the validity of these data is in order. Since interviewers do not provide a definition of "checkup," how a person responds to this question depends on that person's definition. But in the absence of any knowledge that one racial, income, or educational group defines a checkup more strictly than another, the existence and direction of a possible bias is difficult to ascertain.

2. Preventive Medical Procedures

In December 1980, results from the first National Health and Nutrition Examination Survey (NHANES I) were published in the document, "Basic Data on Health Care Needs of Adults Ages 25-74 years, 1971-1975." That survey gathered information regarding the use of selected kinds of medical procedures for the early detection of

disease. The specific types of medical procedures were: cardiogram, blood pressure, chest xray, blood tests, urinalysis, vision, hearing, rectal exam, and female internal exam.

The proportions of the population who received these preventive procedures during a checkup examination are presented by selected demographic characteristics in Tables 2 and 3. While racial, sex, and income groups differ in the numbers who report having had some selected preventive care examination, differences among age groups are not as notable. With the exception of female internal examinations, a higher proportion of blacks than whites received each of the procedures reported in Table 2. Two tests for which the difference was great are chest xrays (60.51 percent of blacks, 49.76 percent of whites) and vision tests (40.23 percent of blacks and 30.09 percent of whites). Also, a larger proportion of men than women had each of the tests or procedures performed. The differentials between several of these preventive examinations were great: 45.49 percent of men and 17.03 percent of women had vision tests; 33.97 percent of men and 9.43 percent of women had hearing tests; 62.04 percent of men and 40.47 percent of women had chest xrays.

While the rate of cardiogram usage increased as patient age increased, the reverse was true for the use of hearing tests.

Family income was a significant factor for four of the preventive procedures: vision tests (26.03 percent of

the lowest income persons compared with 32.83 percent of the highest income persons); hearing tests (17.54 percent of lowest family income persons compared with 22.13 percent of the highest family income persons); rectal examinations (40.60 percent of low income persons compared with 52.67 percent of high income persons); and female internal examinations (55.12 percent of low family income persons compared with 74.62 percent of high family income persons).

Of the nine procedures listed, two are common to most physician visits, whatever the purpose of the visit. These are blood pressure checks and urinalysis. Tables 2 and 3 report these two procedures as administered most frequently to patients receiving general checkups (97.45 percent for blood pressure check; 83.31 percent for urinalysis). Also note that these procedures appear to have little relation to race, sex, age, or income. The remaining procedures are more specialized and are probably administered more selectively. Some are common to preemployment or intermittent employment examinations (e.g., vision and hearing tests, chest xrays). This may explain the higher proportional use of these procedures among males than females. Too, males have general "checkup" examinations as a requirement to participate in extracurricular activities and to qualify for insurance coverage. As stated before, a larger proportion of blacks received each of these preventive procedures than whites, although the proportional differences were not great, with the exception of chest xrays. Whether this is

due to administrative requirements of employment or extracurricular activities, or to blacks' predispositions toward some diseases (e.g., tuberculosis), or, other reasons, cannot be determined from the data in Tables 1 and 2.

3. Prenatal Examinations

Prenatal care has played a major role in the overall downward trend in infant mortality in the United States. Infant deaths are primarily immaturity-associated (low birthweight), and the greatest chance of preventing low birthweight is through early prenatal medical attention. Over 95 percent of the women with live births in 1980 sought prenatal care before delivery, although the time during the gestation *when* they sought the care, and the *amount* of prenatal care visits they made, varied according to the mother's racial/ethnic group and educational attainment (see Table 4).

A higher proportion of whites (81.3 percent) than blacks (61.1 percent) visited a physician for the first time during the first trimester. "The proportion of Hispanic mothers who received prenatal care in the critical first trimester of pregnancy (60.3 percent) was substantially lower than for white non-Hispanic mothers but about the same for black non-Hispanic mothers." (4, p. 4)

Failure to receive prenatal care during the first trimester can cause irreversible damage and lifelong handicaps to the newborn. Nevertheless, 39.8 percent of Hispanic first visits, 38.9 percent of non-Hispanic black first visits, and 18.7 percent

of non-Hispanic white first visits occurred after 4 months or more of pregnancy. The proportion of Hispanic mothers who received no prenatal care at all (3.8 percent) before delivery was generally comparable to non-Hispanic blacks (3.2 percent) but greatly exceeded the proportion of non-Hispanic white mothers (0.8 percent). Probably because a greater proportion of Hispanic women began their prenatal care later than non-Hispanic whites, their median rate of visits was almost two visits less (for Hispanics 9.5, 11.4 for non-Hispanic whites). Compared to non-Hispanic blacks, the median number of visits for Hispanics was one visit less.

Among the various women of Hispanic origins there was considerable variation as to the month of beginning prenatal care and the median number of prenatal physician visits. Only 1 percent of Cuban women received no prenatal care, 82.7 percent sought medical care during their first trimester, and their median number of visits was 11.4. It is apparent that Cuban women most resembled non-Hispanic white women in obtaining early prenatal care and in the number of visits they made for such care. The beginning of prenatal care and the median number of visits for Puerto Rican women was substantially different. In 1980, slightly more than half (55.1 percent) of Puerto Rican mothers received prenatal care in the first trimester, and they made fewer visits for care (9.2) than any other Hispanic or non-Hispanic group.

"...Studies have shown that young mothers with low

educational attainment as well as women having high order births are especially unlikely to receive early prenatal care." (4, p. 6) "Mothers of Hispanic origin were considerably less likely to have completed high school than were non-Hispanic mothers. Cuban mothers were the only Hispanic group whose educational attainment was generally comparable with that of white non-Hispanic mothers. In 1980, 49.0 percent of Hispanic mothers had completed at least 12 years of schooling compared with 81.9 percent for white non-Hispanic and 62.9 percent for black non-Hispanic mothers [see Table 5]. These data were available for 20 States in 1980. California and Texas did not require the reporting of educational attainment. As a result, educational attainment is available for just 36.6 percent of all Hispanic origin births and for only 17.0 percent of Mexican births in the 22 States ." (5, p. 4)

One of the pregnancy and infant health goals identified as a priority for Federal effort is that by 1990, the proportion of women in any geographic, racial, or ethnic group who obtain no prenatal care during the first trimester should not exceed 10 percent.

"In recent years, the development and use of high technology diagnostic techniques has increased in all medical specialties. This increase has been especially rapid in obstetric and newborn care. Many techniques for information gathering and risk assessment that were unavailable a few years ago are now frequently used in the management of pregnancy and delivery." (6, p. 63)

Three prenatal diagnostic techniques used for assessing fetal well-being are discussed here, including a brief description of the actual procedure, and data reporting the use of the tests among selected subgroups of the population. The descriptions of amniocentesis and ultrasound quoted below were taken from *The Nurse's Reference Library: Assessment* (7, p. 764).

Amniocentesis is performed by inserting a needle into the patient's abdomen, through the uterus, and into the amniotic sac to aspirate a sample of the amniotic fluid. Amniocentesis is used for assessing fetal maturity, especially when a cesarean section is planned. Amniocentesis is also used for prenatal diagnosis of genetic disorders, especially if maternal age is advanced (over 35) or a history of chromosomal abnormalities exists.

In 1980, 29 percent of mothers over the age of 35 received amniocentesis during their pregnancies. The percentage of white women receiving amniocentesis was almost twice as high as black women, 30.0 to 16.7 (see Table 6). A smaller proportion of women from nonmetropolitan areas as well as women from the South received amniocentesis compared to women from metropolitan areas and the other three geographic regions.

Ultrasound is used for assessing fetal well-being by placing an ultrasonic transducer on the mother's abdomen which transmits high-frequency sound waves. These sound waves pass through the abdominal wall, deflect off the fetus, and bounce back to the transducer, where they're translated into a visual image on a monitoring screen. The ultrasound test permits early identification of pregnancy, fetal position and presentation, fetal anomalies, and observation of fetal cardiac activity and breathing movements.

For most obstetric uses, ultrasound has replaced xray because it is considered harmless to the mother and fetus. The racial disparity that is obvious in the data for amniocentesis is almost nonexistent for the ultrasound testing (see Table 7). About 30 percent of all pregnant women had at least one ultrasound procedure during their pregnancy. Of the 30 percent, 29.1 percent were white, 30.6 were black. The most significant difference is between black mothers residing in metropolitan areas (34.9 percent) and nonmetropolitan areas.(19.0 percent).

For many years, xrays have been used as an obstetric diagnostic technique for pregnant women. Since no safe limit of radiation dosage has been established for the fetus, the use of x-rays for this purpose is questionable, especially today, when many of the tests for which xrays have been used can be conducted by ultrasound. In 1980, about 13 percent of all pregnant women had at least one medical xray during pregnancy; 13.5 percent of these women were white, 10.8 percent were black (see Table 8). The use of xray is greater in nonmetropolitan areas (15.5 percent) than in metropolitan areas (11.8 percent). This is particularly true for black women in nonmetropolitan areas (17.4 percent). Presumably the use of xray is greater in the nonmetropolitan areas because the use of ultrasound has not reached these outlying districts to date. This is of particular concern, since Table 8 shows how many of the xray procedures performed on black nonmetropolitan women possibly could have been replaced with an ultrasound procedure (10.1 percent).

Certain aspects of a pregnant woman's lifestyle may affect the course of her pregnancy. Two of these which have been proven repeatedly to have harmful results are cigarette smoking and alcoholic beverage intake.

Small infants are more frequently born to mothers who smoke, and strong evidence exists that a mother who smokes is more likely to have an unsuccessful pregnancy. An excessive intake of alcoholic beverages during pregnancy may produce fetal alcohol syndrome in the newborn. Children of alcoholic mothers may also experience growth retardation and other related problems. No safe level of alcohol intake during pregnancy has been identified.

Figure 1 shows that almost half of married women abstained from both smoking and drinking during their pregnancies. This represents a 12.5 percent increase over those who also abstained prior to their pregnancies. A further breakdown of the data in Table 9, however, indicates that abstinence from one or both of these habits was related to race, age, and educational level. The educational level and age of mothers who had chosen to quit smoking during their pregnancy appear to be quite significant. A greater proportion of young mothers

Figure 1

Percent distribution of married mothers of live-born infants, according to smoking and drinking behaviors before and during pregnancy: United States, 1980.
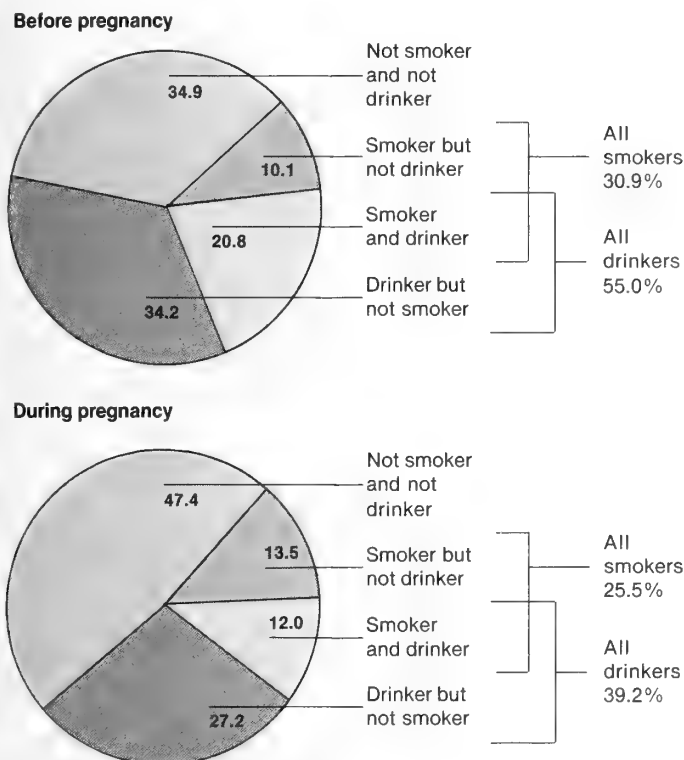
Before pregnancy

During pregnancy

Source: National Center for Health Statistics: Preliminary data from the National Natality Survey. *In* Health, United States, 1983. DHHS Pub. No. (PHS) 84-1232. Hyattsville, MD, December 1983.

(about 20 percent) stopped smoking compared to older mothers (about 7 percent). The age group data are very similar for "all races" and for whites; there appears to be no relation between age and race. More of those mothers who completed 16 years of schooling than those who had 0-11 years of schooling abstained from smoking during pregnancy. The proportional difference is great: 24.2 percent with the highest level of education abstained, and 9.8 percent with the least amount of schooling. As with the age data, no racial differences are reported for these data.

The change in drinking habits of pregnant women is not as pronounced as is the change in smoking patterns.

Proportionally fewer white women than black women or "other race" women stopped drinking. Also, as women increased in age from under 20 years to 35 years and over, they were less likely to stop drinking, regardless of race.

One of the objectives that the Public Health Service hopes to achieve by 1990 is that 85 percent of women of childbearing age should be able to choose foods wisely (state special nutritional needs of pregnancy) and understand the hazards of smoking, alcohol, pharmaceutical products, and other drugs during pregnancy and lactation.

C. Immunization

The seven major childhood infectious diseases are poliomyelitis, mumps, tetanus, diptheria, rubella, pertussis (whooping cough), and measles. They can all cause permanent disability and, in some cases, death. Despite the fact that effective immunizations have long been available to protect children from these diseases, the proportion of young children protected by immunization is only between 60 and 70 percent, with much lower proportions in urban ghettos and poor rural areas of the nation. Table 10 clearly shows that immunization is most lacking in central city areas and within the poverty areas of central cities.

The control of childhood disease requires constant vigilance because, except for smallpox, the causal agents have not been eradicated. There were 385,000 cases of measles in 1963 when the vaccine was first developed, 22,000 cases by 1968, and 70,000 cases in 1971 (8, p. 14). A drop in immunization levels in the early 1970's resulted in over one-third of children under 15 years of age being inadequately protected by 1976. This was accompanied by a 63 percent rise in rubella cases and a 39 percent rise in measles cases.

The National Childhood Immunization Initiative of 1977 made a large difference in the immunization levels of school-age children. By the fall of 1979, 91 percent of children in kindergarten through eighth grade had been protected against measles, polio, and DPT (diphtheria, pertussis, tetanus); 84 percent were protected against rubella. Eight-one percent of children entering kindergarten were

protected against mumps (2, p. 302). In *Objectives for the Nation* it is stated that by 1990 at least 95 percent of children attending kindergarten through 12th grade should be fully immunized against the seven major childhood diseases. Also by 1990, the Public Health Service aims to eliminate the indigenous occurrence of measles. It would like to see fewer than 500 cases of measles (compared to 13,506 cases in 1980). All cases would be a result of importation and would be confined within two generations of spread.

Judging by the success of the 1977 National Childhood Immunization Initiative, there is no reason to doubt that the 1990 immunization goals of the Public Health Service will be attained. All segments of the population are likely to benefit from this initiative— whites and nonwhites, Hispanics and non-Hispanics, urban and rural, poor and nonpoor. Not only are the immunization levels of the underprivileged apt to go up, but also their incidence of disease is apt to drop (even among individuals who are not immunized).

On the other hand, even if these objectives are attained, there could still be significant differences in the immunization levels of *preschool* advantaged and disadvantaged children. This conclusion is supported by data gathered before and after the 1977 Immunization Initiative (see Table 10). By requiring immunization for admittance to school, government agencies can greatly influence the immunization levels of school-age children. But immunization levels of preschool children are much harder to control. Table 10 shows im-

munization levels of children 1 to 4 years of age between 1974 and 1981. Between those years, the percent of vaccinated nonwhite preschool children went *down* for DPT and polio, but went up for the other three vaccines. The protection levels of central city preschool children went *down* for four of the five vaccines between 1974 and 1981. It went up for the mumps vaccine, mainly because this vaccine was relatively new and underused in 1974. One of the startling statistics found in Table 10 is that non-SMSA areas in 1974 were below the total levels for all five vaccines; by 1981 this inverted, however, and non-SMSA areas were above the total levels.

In addition to the objectives already mentioned, the Public Health Service aims by 1990 to have 90 percent of all children complete their immunization series by age 2. This difficult objective will be attacked with grants and education programs aimed at new mothers, hospitals and clinics, daycare centers, low income mothers, State and local health agencies, physicians, professional organizations, and private industries. Projects to instruct new mothers about immunization schedules are very active in most States. If this initiative is successful, it promises to narrow the immunization gap between advantaged and disadvantaged preschool children.

D. Overall Health Assessment

How one perceives the state of his or her health may or may not be a valid measure of health status. Even if perception does not reflect health status, it may motivate

individuals to take curative or preventive health actions. Evidence for this proposition is found in the National Medical Care Utilization and Expenditures Survey (NMCUES) 1980 data. That survey reported that persons with perceived health statuses of excellent, good, fair, and poor had an average number of physician visits of 2.94, 4.15, 7.42, and 11.36, respectively (9, p. 31).

In addition to "self assessment of health" data from the NMCUE Survey, this section includes data from the National Health Interview Survey. Both surveys are used because the former included Hispanic data, and the latter included 1976 and 1981 data and thus examined change over a 5-year period.

Data resulting from this type of survey methodology have two notable limitations. First, they are based on the respondent's perception of his or her own health, and second, they are based on the respondent's perception of each family member's health.

Most people in the United States assess their own health as good or excellent. In 1980, about half the population (46.6 percent) assessed their health as excellent; 86.3 percent perceived their health as good or excellent. Racial groups showed some differences, but a large proportion of each of the groups claimed as good or excellent health: Hispanics, 87.3 percent; whites, 86.8 percent; and blacks, 82.2 percent.

The U.S. Hispanic population is relatively younger and their proportionally high reporting of good to excellent health may therefore be expected, since younger people usually *are* in better

health and *perceive* their health as such. Blacks as a group, however, are also younger than the general population, but their assessment of excellent or good health falls 5.1 percent below Hispanics and 4.6 percent below whites (10, p. 39). Interpretation of these self-reported data should be done with caution, since there is a good chance that age-adjusted, self-reported data may show greater racial/ethnic differentials.

Perceived health status from the National Health Interview Survey in 1976 and 1981 shows that proportions remained basically unchanged over the 5-year period (see Table 11). In 1981, 11.8 percent of the total population reported their health as fair or poor, compared to 12.1 percent in 1976. The survey found that 10.8 percent of whites had an assessment of fair or poor in 1981 (11.1 percent in 1976), while 19.7 percent of blacks had such an assessment (19.9 in 1976). As income increased over $10,000, the proportion of persons who assessed their health as good or excellent also increased; each family income grouping above $10,000 showed a drop in the percentage reporting fair or poor health status. It appears, however, that the greatest improvement was in the $10,000-to-$14,999 income group.

E. Lifestyles

"Many aspects of our current lifestyle are not conducive to health. We smoke cigarettes, we drink alcohol, we get too little exercise, we eat too much, we live tense lives, we do not fasten seat belts, and we often do not take adequate care in other activities." (11, p. 690)

The preceding quotation clearly states the subject area

of this section: nonmedical lifestyle patterns that affect health. This inclusion is based on the current thinking among health professionals, that given today's disease patterns, behavioral modification and health education may be more influential in improving health status than additional medical care.

The following statement was made at a National Conference on Preventive Medicine:

An important means of preventing the health problems of our day, then, is to influence the daily habits of people. These health problems are now known to be caused largely by various aspects of a new style of life, including cigarette smoking and excessive consumption of alcohol and food, that prevails among many people in the United States. The means of dealing with the current major health problems, thus, will evidently be much more dependent on personal, lifelong behavior than has been true of health problems in the past. It will be necessary to involve individuals themselves in controlling these diseases, at least in the face of our present understanding of the origin of the major chronic diseases. (12, p. 113)

The three major lifestyle problems of cigarette smoking, alcohol consumption, and obesity are treated in this section, and the differences in the lifestyle trends among the disadvantaged are discussed.

1. Cigarette Smoking

"Cigarette smoking is the largest single preventable cause of illness and premature death in the United States. Cigarette smokers have a 70 percent higher overall death rate than nonsmokers, and tobacco is

associated with an estimate in excess of 300,000 premature deaths per year. The major single cause of cancer mortality in the United States is cigarette smoking, contributing to more than 100,000 cancer deaths annually. Smoking is a causal factor in coronary heart disease and arteriosclerotic peripheral vascular disease and is also the most important cause of chronic obstructive lung disease. Cigarette smoking acts synergistically with alcohol to increase the likelihood of cancer of the larynx, esophagus, and oral cavity, with other coronary risk factors such as hypercholesteremia to aggravate cardiovascular risk, and with oral contraceptives to increase the risk of coronary heart disease and some forms of cerebrovascular disease. During pregnancy, cigarette smoking can increase the risk of spontaneous abortion, retarded fetal growth, and even fetal or neonatal death." (13, p. 260)

Since the release of the first Surgeon General's report in 1964, more than 30 million smokers have quit smoking cigarettes, and the proportion of adult smokers has declined from about 42 percent in 1965 to approximately 33 percent in 1980 (13, p. 260). The proportion of men who smoke declined to 37.9 percent in 1980 and the proportion of women who smoked dropped to 29.8 percent. Although the proportions of adults who are smokers is decreasing for both sexes, the rate of decrease has been more precipitous among females than males. This has caused the male-to-female ratio to

drop from 1.52 in 1965 to 1.27 in 1980 (see Table 11).

The most recent data to show racial comparisons of smoking behavior are presented in Tables 12 and 13. They present some interesting findings. Through the reported years, a higher proportion of blacks have smoked cigarettes than whites. Those whites who smoked, however, tended to smoke much more heavily than blacks. It is also clear from the 1980 data that a higher proportion of whites are giving up smoking (are former smokers) than are blacks.

The Health Interview Survey periodically includes cigarette smoking questions to obtain updated information about the prevalence of smoking, and the characteristics and behavior of smokers. The 1978 questionnaire contained items to identify smokers who have attempted to quit at some time. The data show that the majority of smokers have made at least one serious attempt to quit during their smoking years. About the same percentage of black and white smokers attempted to quit at some time. More blacks than whites, however, reported having attempted to quit smoking during the year of the survey (blacks, 36.6 percent; whites, 25.1 percent). Although a slightly higher proportion of men than women ever attempted to quit, the 1978 data showed more women trying to quit (28.3 percent of women versus 24.4 percent of men). This sex difference was more apparent among blacks than among whites (14, p. 8).

To improve health through smoking control, *Objectives for the Nation* has stated that by 1990 the proportion of adults who smoke should be reduced to below 25 percent.

2. Alcohol Consumption

"Currently (1979 data), average consumption of alcohol for all persons over 14 years of age is 10 percent higher than 10 years ago and is equivalent to about 2.75 gallons of ethanol per person per year. The relationship of drinking and driving, especially among teenagers, has become of increased public concern. Substantial health costs to society result from alcohol misuse. About 10 percent of all deaths in the United States are alcohol related. Cirrhosis of the liver is largely attributable to alcohol consumption. The cause-of-death category "chronic liver disease and cirrhosis" ranks among the 10 leading causes of death. Alcohol use also is associated with cancer of the liver, pancreas, esophagus, and mouth. The misuse of alcohol leads to increased risk of injury and death to self, family members, and others, especially by fires and motor vehicle and other accidents." (13, p. 261)

Regarding the drinking habits of the disadvantaged, the results of surveys show that the frequency of alcohol consumption rises directly with family income. Table 14 shows in 1977, that 46 percent of those with family incomes less than $5,000 were abstainers, but only 15 percent of those with family incomes of $25,000 and over abstained. Table 14 also shows that alcohol consumption increases with age and is more prevalent among males. Consumption has also been rising over time (see Table 15). Table 15 shows a consistent rise in the percentage of the population that used alcohol between 1972 and 1979. Although more whites consume alcohol than nonwhites, the rise in the pro-

portion using alcohol between 1976 and 1979 was about equal for blacks and whites. The age group data, however, indicate the possibility that blacks (and "others") will eventually be consuming alcohol at the same or greater rates than whites. Between 1976 and 1979, the following changes occurred in white/black (and "other") ratios: among youths the ratio dropped from 1.48 to 1.31; among young adults, 1.33 to 1.25; among adults 1.14 to 1.10. These drops suggest that if these alcohol consumption practices continue, the black rates will approximate those of whites approximately a generation from now.

The goal for 1990 states that per capita consumption of alcohol should not exceed current levels (in 1978, about 2.82 gallons of absolute alcohol were consumed per year per person aged 14 years and over).

3. Obesity (Overweight)

Obesity, a surplus of body fat, is usually defined by the sum of triceps and subscapular skinfold thickness. "Overweight" refers to the deviation within the "fatness range" from desirable weight, as shown in height-weight tables. The two measures are correlated but independent. Only 13 percent of adult men and 22 percent of adult women are both obese and overweight, at or above the 85th percentile (15, p. 5).

Obesity, or overweight resulting from excess body fat, has been linked as a risk factor in the development of hypertension, gallbladder disease, and diabetes. In addition to the increased risk of developing certain diseases, there are the social, psychological, and economic costs of obesity. Obese

people appear to be discriminated against in both educational and employment opportunities, particularly with respect to the opportunity for better paying jobs (16, p. 32).

Table 16 reports data on obese adults from the 1971-1974 Health and Nutrition Examination Survey (HANES). That study found that the largest proportion of obese adults were black females aged 20 to 44, while the lowest proportion of obese adults were black males aged 45 to 74. More black females were obese than white females, and the rates for white and black males were similar (see Table 16).

These findings are consistent with those reported in The Ten State Nutrition Survey, which examined obesity and overweight in a sample U.S. population. Figure 2 demonstrates the fatness trends of black and white females through several life stages. Further, it demonstrates the observations of S.M. Garn, a noted nutritionist with several publications on obesity. Garn recognizes the problem of obesity in post-adolescent black females and refers to it as an age-related reversal of fatness. From a very young age, white females are systematically fatter than black females of the same age until adolescence, when there is a reversal of this trend that persists throughout adult life (17, p. 97).

Two nutrition-related goals from *Objectives of the Nation* that are relevant to the topic of obesity are: 1) By 1990, the prevalence of significant overweight (120 percent of "desired" weight) among the U.S. adult population should

Figure 2

Comparative fatness trends of black and white female participants in the Ten State Nutrition Survey

Triceps Fatfold (mm)
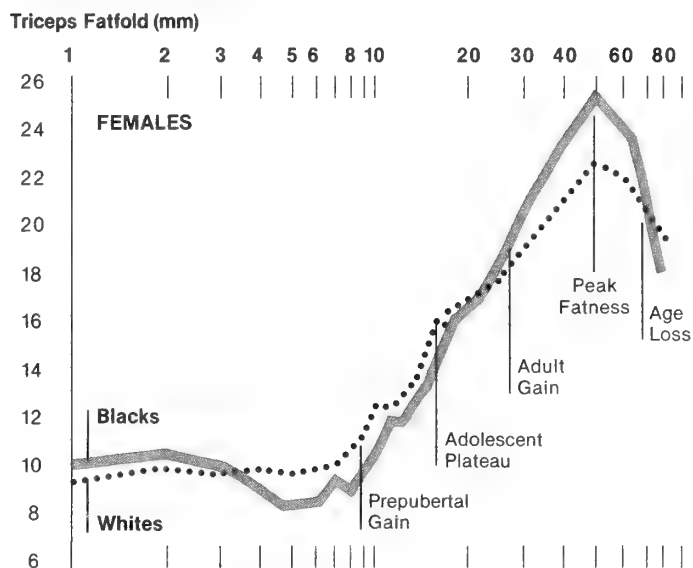
be decreased to 10 percent of men and 17 percent of women, without nutritional impairment. (In 1971-74, 14 percent of adult men and 24 percent of women were more than 120 percent of "desired" weight). 2) By 1990, 50 percent of the overweight population should have adopted weight loss regimens, combining an appropriate balance of diet and physical activity.

In the Health Interview Survey conducted by NCHS, people over 17 years of age were asked if they considered themselves to be overweight. Although a higher percentage of black women are overweight, more white women (50 percent) than black women (44 percent) considered themselves to be overweight. As income increased, more women perceived themselves to be overweight, even though women below the poverty line tend to be heavier than women above the poverty line (16, p. 33).

Regarding the three behavior patterns (smoking,

drinking, overeating) that have the greatest impact on prevalent disease conditions of today, the white male presently appears to be most involved with a lifestyle that may have serious health ramifications. The trend data for most groups of our society, however, indicate that each of the population's major subgroups is rapidly approaching the excessive lifestyle level of the white male. In absolute numbers, more females, both black and white, are smoking than ever before. Black youths are consuming large amounts of alcohol and, should they continue this practice into adulthood, their consumption rate will equal or exceed the present level of consumption of the white male. Presently, a large number of black females are seriously obese; however, obesity and overweight is significantly more prevalent among women of all races/ethnic groups than among men of comparable ages.

Table 1

Percent of population with a general checkup within a year, by selected characteristics: United States, 1980.

Characteristic	Percent with general checkup
All persons[1]	39.3
Sex	
Male	33.8
Female	44.4
Race	
White	41.3
Black	42.2
Family income	
Less than $5,000	26.8
$5,000-$9,999	39.4
$10,000-$14,999	37.2
$15,000-$24,999	40.7
$25,000 or more	39.4
Education of head of family	
Less than 9 years	29.4
9-11 years	34.9
12 years	38.8
13-15 years	45.5
16 years or more	48.9

[1]Includes races other than white or black, unknown family income and unknown education of head of family
Source: Compiled and abstracted by CHESS from National Center for Health Statistics. J. G. Collins: Physician visits, volume and interval since last visit, United States, 1980 Series 10, No. 144, DHHS Pub. No. (PHS) 83-1572. Public Health Service. Washington, DC, U.S. Government Printing Office, June 1983

Table 2

Percent of persons ages 25-74 years by race, sex, age, and selected tests or procedures received during checkup: United States, 1971-75.

Selected tests or procedures	Total[1]	Race		Sex		Age in years				
		White	Black	Men	Women	25-34	35-44	45-54	55-64	65-74
					Percent of persons					
Cardiogram	34.06	33.62	37.30	40.97	27.44	15.39	29.72	39.71	48.84	53.90
Blood pressure check	97.45	97.31	98.62	98.77	96.18	96.92	97.24	97.14	98.31	98.37
Chest X-ray	51.02	49.76	60.51	62.04	40.47	44.14	48.72	53.40	57.45	57.49
Blood tests	77.08	76.49	81.92	81.71	72.64	73.68	76.61	77.77	80.44	79.65
Urinalysis	83.31	83.28	83.29	87.10	79.68	83.01	85.34	82.03	84.41	80.90
Vision tests	30.94	30.09	40.23	45.49	17.03	36.37	33.81	29.96	25.88	21.96
Hearing tests	21.43	20.97	25.58	33.97	9.43	24.69	22.50	20.70	19.83	15.21
Rectal examination	48.57	48.43	50.07	52.46	44.85	45.04	48.24	52.11	49.01	50.19
Internal examination (women)	67.54	68.43	60.25	—	67.54	75.71	75.88	64.09	58.32	54.67

[1]Includes races other than white and black.
Source: National Center for Health Statistics, W.C. Hadden: Basic data on health care needs of adults ages 25-74 years, United States, 1971-1975. Series 11, No. 218. DHHS Pub. No. (PHS) 81-1668. Public Health Service. Hyattsville, MD, December 1980.

Table 3

Percent of persons ages 25-74 years by annual family income and selected tests or procedures received during checkup: United States, 1971-75.

Selected tests or procedures	Total	Annual family income group				
		Less than $4,000	$4,000-$6,999	$7,000-$9,999	$10,000-$14,999	$15,000 or more
		Percent of persons				
Cardiogram	33.91	38.58	33.63	32.58	29.95	36.42
Blood pressure check	97.43	97.69	96.22	97.40	97.61	97.78
Chest X-ray	50.68	53.91	51.75	51.17	48.76	50.08
Blood tests	76.80	74.53	76.62	78.01	75.30	78.32
Urinalysis	83.07	80.56	80.15	83.35	83.54	85.01
Vision tests	30.88	26.03	28.66	30.61	32.51	32.83
Hearing tests	21.23	17.54	23.38	20.65	21.27	22.13
Rectal examination	48.51	40.60	48.66	46.62	49.12	52.67
Internal examination (women)	67.74	55.12	62.47	68.53	71.58	74.62

Source: National Center for Health Statistics, W. C. Hadden: Basic data on health care needs of adults ages 25-74 years, United States, 1971-1975 Series 11, No. 218. DHHS Pub. No. (PHS) 81-1668. Public Health Service. Hyattsville, MD, December 1980

Table 4

Percent distribution of live births by month of pregnancy prenatal care began and median number of prenatal visits, by Hispanic origin of mother, and by race of child for mothers of non-Hispanic origin: total of 22 reporting States, 1980.

Measure of pre-natal care	All origins[1]	Origin of mother								
		Hispanic						Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total[2]	White	Black
Month of pregnancy prenatal care began	Percent distribution									
Total	100.0	100.0	100.00	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1st and 2d month	50.2	36.9	36.1	32.3	62.9	35.5	42.5	52.3	56.2	37.6
3d month	24.5	23.4	23.6	22.8	19.8	23.2	23.9	24.7	25.1	23.5
4th-6th month	19.4	27.8	28.5	28.7	13.4	28.1	24.4	18.1	15.2	29.3
7th-9th month	4.2	8.2	8.5	7.9	2.8	8.2	7.5	3.6	2.7	6.4
No prenatal care	1.6	3.8	3.4	8.3	1.0	5.0	1.7	1.3	0.8	3.2
Prenatal visits[3]	Median									
Number[4]	11.0	9.5	9.3	9.2	11.4	9.6	10.0	11.1	11.4	10.5

[1]Includes origin not stated
[2]Includes races other than white and black
[3]Excludes data for California and New Mexico, which did not report number of prenatal visits.
[4]Excludes births to mothers with no prenatal care
Source: National Center for Health Statistics: S.J Ventura: Births of Hispanic parentage, 1980. *Monthly Vital Statistics Report* Vol 32, No 6 Supp DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD, September 1983.

Table 5

Number of live births and percent distribution of live births by educational attainment of mother and median years of school completed by Hispanic origin of mother, and by race of child for mothers of non-Hispanic origin: total of 20 reporting States, 1980.

Years of school completed by mother	All origins[1]	Origin of mother								
		Hispanic						Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total[2]	White	Black
					Number					
Live births	1,398,998	112,573	36,548	32,041	6,449	14,519	23,016	1,206,199	922,034	239,579
					Percent distribution					
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years	4.7	23.0	37.1	16.8	8.4	22.9	13.2	3.2	2.5	4.8
9-11 years	19.6	28.1	25.7	38.5	15.8	18.3	26.9	18.9	15.6	32.3
12 years	43.6	34.1	27.0	32.5	41.8	40.3	41.5	44.3	45.4	41.7
13-15 years	18.2	10.8	8.0	9.3	22.4	12.4	12.9	18.9	19.9	15.3
16 years or more	13.9	4.2	2.2	3.0	11.6	6.1	5.5	14.7	16.6	5.9
Percent completing 12 years or more of school	75.7	49.0	37.2	44.7	75.9	58.8	59.9	77.9	81.9	62.9
					Median					
Years of school completed . .	12.6	11.9	10.5	11.6	12.6	12.2	12.2	12.6	12.7	12.3

[1]Includes origin not stated.
[2]Includes races other than white and black.
Note: Excludes data for California and Texas, which did not report educational attainment.
Source: National Center for Health Statistics, S.J. Ventura: Births of Hispanic parentage, 1980. *Monthly Vital Statistics Report.* Vol. 32, No. 6 Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service, Hyattsville, MD, September 1983

Table 6

Mothers receiving amniocentesis during pregnancy, according to age, race, and location of residence: United States, 1980.

Location of residence	Under 35 years			35 years and over		
	All races	White	Black	All races	White	Black
	Percent of mothers					
All locations	3.9	3.9	5.0	29.0	30.0	16.7
Metropolitan	4.0	3.7	5.4	33.0	34.8	*
South	4.1	4.5	3.3	23.5	20.6	*
Other regions	3.9	3.5	6.8	35.7	38.5	*
Nonmetropolitan	3.8	3.8	4.0	22.0	22.0	*
South	3.5	3.6	3.6	18.5	19.5	*
Other regions	4.1	3.9	*	25.0	24.0	*

Note: Based on 4,983 births with responses to the item on amniocentesis on the hospital or physician questionnaire.
*Figure does not meet standards of reliability or precision.
Source: National Center for Health Statistics: Preliminary data from the National Natality Survey. *In* Health, United States, 1983 DHHS Pub. No. (PHS) 84-1232. Hyattsville, MD, December 1983.

Table 7

Mothers with at least one ultrasound procedure during pregnancy, according to race and location of residence: United States, 1980.

Location of residence	All races	Race	
		White	Black
	Percent of mothers		
All locations	29.3	29.1	30.6
Metropolitan	32.0	31.6	34.9
South	31.1	31.7	29.8
Other regions	32.4	31.6	38.6
Nonmetropolitan	24.2	24.5	19.0
South	22.3	23.1	18.5
Other regions	25.6	25.4	*

Note: Based on 5,343 births with complete responses from medical sources
*Figure does not meet standards of reliability or precision
Source: National Center for Health Statistics: Preliminary data from the National Natality Survey *In* Health, United States, 1983 DHHS Pub No. (PHS) 84-1232. Hyattsville, MD, December 1983

Table 8

Mothers with at least one medical X-ray during pregnancy, according to reason for X-ray, race, and location of residence: United States, 1980.

Location of residence	All reasons			Potential ultrasound		
	All races	White	Black	All races	White	Black
	Percent of mothers					
All locations	13.1	13.5	10.8	4.9	4.9	4.5
Metropolitan	11.8	12.4	8.3	3.9	4.1	2.4
South	12.2	12.9	8.0	4.3	4.1	3.4
Other regions	11.7	12.3	8.5	3.8	4.1	1.7
Nonmetropolitan	15.5	15.3	17.4	6.8	6.3	10.1
South	16.8	16.6	16.9	8.5	7.8	10.2
Other regions	14.6	14.6	*	5.5	5.4	*

Note: Based on 5,343 births with complete responses from medical sources.
*Figure does not meet standards of reliability or precision
Source: National Center for Health Statistics: Preliminary data from the National Natality Survey. *In* Health, United States, 1983 DHHS Pub No. (PHS) 84-1232 Hyattsville, MD, December 1983.

Table 9

Change in smoking[1] and drinking[2] behavior during pregnancy of married mothers of live-born infants, according to selected characteristics: United States, 1980.

Characteristic	With 1 or both habits			With both habits and stopped 1 or both
	Stopped smoking	Stopped drinking	Became abstinent	
	Percent of mothers			
All married mothers	17.6	29.6	19.6	43.1
Race				
White	17.7	29.0	19.1	42.9
Black	12.9	37.8	26.2	35.3
Other[3]	20.8	37.0	23.4	55.9
Hispanic origin				
Hispanic	25.4	27.7	20.2	50.0
Non-Hispanic	17.3	29.7	19.6	42.8
Age[4]				
All races:				
Under 20 years	19.9	39.1	17.4	54.5
20-24 years	17.4	33.2	19.1	46.5
25-29 years	18.0	29.5	21.3	41.2
30-34 years	18.9	22.4	18.5	33.3
35 years and over	6.9	28.1	17.5	36.1
White:				
Under 20 years	20.3	39.5	17.2	55.1
20-24 years	17.0	32.4	18.4	45.9
25-29 years	18.1	29.5	21.2	41.6
30-34 years	19.6	21.3	17.7	33.3
35 years and over	7.8	25.2	15.9	34.4
Education[4,5]				
All races:				
0-11 years	9.8	29.5	9.5	40.5
12 years	16.9	30.8	19.3	42.0
13-15 years	21.8	25.2	20.0	40.0
16 years or more	24.2	29.7	25.5	45.9
White:				
0-11 years	10.0	30.2	9.5	39.8
12 years	16.5	30.2	18.6	41.7
13-15 years	23.0	24.5	19.7	40.8
16 years or more	24.3	28.5	24.5	44.7

[1]Smokers are those who smoked at least 1 tobacco cigarette per day.
[2]Drinkers are those who consumed at least 1 drink (0.5 oz. of absolute alcohol) once a month.
[3]Includes all other races not shown separately.
[4]For all other races, number of cases was too few to meet standards for precision or reliability
[5]Includes mothers who are 20 years of age and over.
Source: National Center for Health Statistics: Preliminary data from the National Natality Survey. In Health, United States, 1983 DHHS Pub. No. (PHS) 84-1232. Public Health Service, Hyattsville, MD, 1983.

Table 10

Vaccination status of children 1-4 years of age, according to race and standard metropolitan statistical area (SMSA) component: United States, 1974, 1976, 1979, and 1981.

(Data are based on household interviews of a sample of the civilian, noninstitutionalized population.)

Year, race, and SMSA component	Vaccination				
	Measles	Rubella	DTP[1,2]	Polio[2]	Mumps
	Percent of population				
1974					
Total	64.5	59.8	73.9	63.1	39.4
Race					
White	66.8	61.0	76.8	66.7	41.1
All other	53.1	53.6	59.6	45.0	31.2
SMSA component					
Central city	62.5	61.1	69.5	60.0	37.9
Poverty area[3]	52.9	55.3	57.3	51.5	28.9
Nonpoverty area	66.0	63.2	74.0	63.1	41.2
Remaining areas in SMSA	68.5	62.3	77.9	68.1	43.9
Non-SMSA	61.6	55.5	73.2	60.0	35.4
1976					
Total	65.9	61.7	71.4	61.6	48.3
Race					
White	68.3	63.8	75.3	66.2	50.3
All other	54.8	51.5	53.2	39.9	38.7
SMSA component					
Central city	62.5	59.5	64.1	53.8	45.6
Remaining areas in SMSA	67.2	63.5	75.7	65.3	50.7
Non-SMSA	67.3	61.5	72.9	63.9	47.9
1979					
Total	63.5	62.7	65.4	59.1	55.4
Race					
White	66.2	64.7	69.0	63.6	57.5
All other	51.2	53.7	49.2	38.9	46.0
SMSA component					
Central city	57.8	58.0	58.0	52.1	49.5
Poverty area[3]	47.7	52.8	48.6	44.5	40.8
Nonpoverty area	60.9	59.6	61.0	54.4	52.1
Remaining areas in SMSA	65.6	65.1	69.1	61.6	57.2
Non-SMSA	66.1	64.1	67.7	62.6	58.5
1981					
Total	63.8	64.5	67.5	60.0	58.4
Race					
White	65.7	66.6	71.0	63.8	60.5
All other	55.3	55.2	52.0	42.7	49.1
SMSA component					
Central city	60.0	59.9	58.7	52.6	52.8
Remaining areas in SMSA	64.3	64.6	68.8	62.0	58.6
Non-SMSA	65.9	67.5	72.2	63.0	61.9

[1]Diptheria-tetanus-pertussis
[2]Three doses or more
[3]Geographic areas where 20 percent or more of the population falls below the poverty level as defined by the Bureau of the Census in 1970.
Note Beginning in 1976, the category "don't know" was added to response categories Prior to 1976, the lack of this option forced positive answers particularly for vaccinations requiring multiple dose schedules, i.e., polio and DTP

Table 11

Self assessment of health according to selected characteristics: United States, 1976 and 1981.

(Data are based on household interviews of a sample of the civilian, noninstitutionalized population)

Selected characteristic	Self-assessment of health as fair or poor	
	1976	1981
Total[1,2,3]	12.1	11.8
Age		
Under 17 years	4.3	4.0
Under 6 years	4.5	4.2
6-16 years	4.2	3.8
17-44 years	8.3	8.3
45-64 years	22.2	22.0
65 years and over	31.3	30.1
Sex[1]		
Male	11.4	11.4
Female	12.8	12.1
Race[1,4]		
White	11.1	10.8
Black	19.9	19.7
Family income[1,5]		
Less than $7,000	22.2	22.5
$7,000-$9,999	17.2	18.3
$10,000-$14,999	13.8	12.4
$15,000-$24,999	10.5	9.6
$25,000 or more	7.3	6.5
Geographic region[1]		
Northeast	10.4	10.3
North Central	11.0	10.9
South	14.9	14.3
West	11.0	10.5
Location of residence[1]		
Within SMSA	11.1	11.0
Outside SMSA	14.2	13.5

[1]Age adjusted by the direct method to the 1970 civilian, noninstitutionalized population, using 4 age intervals

[2]Includes all other races not shown separately.

[3]Includes unknown family income.

[4]In 1976, the racial classification of persons in the National Health Interview Survey was determined by interviewer observation. In 1981, race was determined by asking the household respondent.

[5]Family income categories for 1981. Adjusting for inflation, corresponding income categories in 1976 were: less than $5,000; $5,000-$6.999; $7.000-$9.999; $10,000-$14,999, and $15,000 or more.

Source: Division of Health Interview Statistics, National Center for Health Statistics. Data from the National Health Interview Survey. *In* Health, United States, 1983. DHHS Pub. No. (PHS) 84-1232, Hyattsville, MD, December 1983.

Table 12

Cigarette smoking status of persons 20 years of age and over, according to sex, race, and age: United States, 1965, 1976, and 1980.

(Data are based on household interviews of a sample of the civilian noninstitutionalized population.)

Sex, race, and age	Smoking status					
	Current smoker[1]			Former smoker		
	1965	1976	1980[2]	1965	1976	1980[2]
Male Total[3,4]			Percent of persons			
All ages, 20 years and over[5]	52.1	41.6	37.9	20.3	29.6	30.5
20-24 years	59.2	45.9	39.7	9.0	12.2	12.1
25-34 years	60.7	48.5	43.1	14.7	18.3	20.6
35-44 years	58.2	47.6	42.6	20.6	27.3	27.6
45-64 years	51.9	41.3	40.8	24.1	37.1	36.9
65 years and over	28 5	23.0	17.9	28.1	44.4	47.4
White						
All ages, 20 years and over[5]	51.3	41.0	37.1	21.2	30.7	31.9
20-24 years	58.1	45.3	39.0	9.6	13.3	12.2
25-34 years	60.1	47.7	42.0	15.5	18.9	21.9
35-44 years	57.3	46.8	42.4	21.5	28.9	28.8
45-64 years	51.3	40.6	40.0	25.1	38.1	38.4
65 years and over	27.7	22.8	16.6	28.7	45.6	50.1
Black						
All ages, 20 years and over[5]	59.6	50.1	44.9	12.6	20.2	20.6
20-24 years	67.4	52.8	45.5	3.8	4.1	10.6
25-34 years	68.4	59.4	52.0	6.7	11.8	11.9
35-44 years	67.3	58 8	44.2	12.3	13.8	21.2
45-64 years	57.9	49.7	48.8	15.3	28.6	26.3
65 years and over	36.4	26.4	27.9	21.5	33.0	26.6
Female						
Total[3,4]						
All ages, 20 years and over[5]	34.2	32.5	29.8	8.2	13.9	15.7
20-24 years	41.9	34.2	32.7	7.3	10.4	11.0
25-34 years	43.7	37.5	31.6	9.9	12.9	14.4
35-44 years	43.7	38.2	34.9	9.6	15.8	18.9
45-64 years	32.0	34.8	30.8	8.6	15.9	17.1
65 years and over	9.6	12.8	16.8	4.5	11.7	14.2
White						
All ages, 20 years and over[5]	34.5	32.4	30.0	8.5	14.6	16.3
20-24 years	41.9	34.4	33.3	8.0	11.4	12.5
25-34 years	43.4	37.1	31.6	10.3	13.7	14.7
35-44 years	43.9	38.1	35.6	9.9	17.0	20.2
45-64 years	32.7	34.7	30.6	8.8	16.4	17.4
65 years and over	9.8	13.2	17.4	4.5	11.5	14.3
Black			Percent of persons			
All ages, 20 years and over[5]	32.7	34.7	30.6	5.9	10.2	11.8
20-24 years	44.2	34.9	32.3	2.5	5.0	2.2
25-34 years	47.8	42.5	34.2	6.7	8.9	11.6
35-44 years	42.8	41.3	36.5	7.0	9.6	12.5
45-64 years	25.7	38.1	34.3	6.6	11.9	14.1
65 years and over	7.1	9.2	9.4	4.5	13.3	14.1

[1] A current smoker is a person who has smoked at least 100 cigarettes and who now smokes, includes occasional smokers

[2] Final estimates Based on data for the last 6 months of 1980

[3] Base of percent excludes persons with unknown smoking status.

[4] Includes all other races not shown separately.

[5] Age adjusted by the direct method to the 1970 civilian noninstitutionalized population using 5 age groups.

Note: Data in this table should not be compared with data in *Health, United States, 1981* or *Health, United States, 1982*. The 1980 data in the 1981 edition were preliminary estimates, and the data in the 1982 edition were final estimates but did not include age-adjusted data.

Source: Division of Health Interview Statistics, National Center for Health Statistics: Data from the National Health Interview Survey. *In* National Center for Health Statistics: Health, United States, 1983. DHHS Pub. No (PHS) 84-1232. Public Health Service. Hyattsville, MD, December 1983.

Table 13

Cigarettes smoked per day by persons 20 years of age and over, according to sex, race, and age: United States, 1965, 1976, and 1980.
(Data are based on household interviews of a sample of the civilian, noninstitutionalized population.)

Sex, race, and age	Cigarettes smoked per day								
	Less than 15			15-24			25 or more		
	1965	1976	1980[1]	1965	1976	1980[1]	1965	1976	1980[1]
Male **Total[2,3]**	Percent of current smokers[4]								
All ages, 20 years and over[5]	30.1	24.9	24.2	45.7	44.4	41.7	24.1	30.7	34.2
20-24 years	34.9	31.6	32.6	49.7	49.9	47.6	15.4	18.5	19.8
25-34 years	25.7	25.5	23.1	50.0	45.8	46.8	24.3	28.7	30.1
35-44 years	23.7	19.6	17.5	44.8	41.2	41.9	31.5	39.2	40.7
45-64 years	26.7	18.5	21.5	45.3	44.1	35.9	28.0	37.4	42.6
65 years and over	47.1	39.1	32.4	39.0	42.7	42.5	13.8	18.2	25.2
White									
All ages, 20 years and over[5]	27.7	22.3	20.0	46.3	44.4	42.7	26.0	33.3	37.3
20-24 years	32.3	27.5	27.5	50.8	52.8	50.5	16.9	19.7	22.1
25-34 years	22.8	22.1	18.9	51.1	46.5	47.6	26.1	31.4	33.6
35-44 years	21.3	17.2	13.4	44.8	40.4	41.9	33.9	42.5	44.8
45-64 years	24.6	16.2	17.3	45.4	43.3	36.9	30.0	40.4	45.8
65 years and over	44.6	37.5	29.0	40.3	42.2	44.0	15.1	20.4	27.0
Black									
All ages, 20 years and over[5]	49.8	43.7	48.4	41.6	45.6	37.9	8.6	10.8	13.8
20-24 years	52.7	56.9	58.6	41.9	34.2	34.5	*5.3	*8.9	6.9
25-34 years	47.8	46.0	42.0	41.7	43.5	47.6	10.5	10.5	10.4
35-44 years	42.5	38.5	50.1	45.5	44.8	36.4	12.0	16.7	13.7
45-64 years	46.9	35.9	50.4	43.7	50.8	34.4	9.4	13.3	15.2
65 years and over	64.9	53.0	42.1	31.9	47.0	37.4	*3.2	*	20.9
Female									
Total[2,3]									
All ages, 20 years and over[5]	46.2	37.6	34.7	40.8	43.4	42.0	13.0	19.0	23.2
20-24 years	48.4	43.1	43.5	41.9	42.4	40.6	9.7	14.5	15.9
25-34 years	41.4	34.3	33.7	43.1	45.2	42.1	15.5	20.5	24.2
35-44 years	39.1	33.8	27.6	43.7	44.4	39.7	17.1	21.8	32.7
45-64 years	44.4	34.3	29.6	42.0	44.2	45.5	13.6	21.5	24.9
65 years and over	62.6	49.3	48.7	31.0	38.9	38.2	6.4	11.8	13.1
White									
All ages, 20 years and over[5]	43.7	34.3	30.7	42.4	44.9	44.1	13.9	20.9	25.2
20-24 years	45.3	39.3	37.3	44.4	44.3	44.0	10.4	16.4	18.7
25-34 years	37.9	30.6	28.3	45.4	46.8	45.7	16.7	22.6	26.0
35-44 years	36.2	29.5	24.1	45.3	45.4	40.5	18.4	25.1	35.5
45-64 years	42.4	32.0	25.4	43.2	45.1	47.9	14.5	23.0	26.7
65 years and over	61.5	45.7	47.6	31.8	41.7	38.4	6.8	12.6	14.0
Black	Percent of current smokers[4]								
All ages, 20 years and over[5]	70.3	64.5	61.1	25.0	30.0	30.4	4.6	5.6	8.6
20-24 years	73.4	65.7	80.0	22.1	31.3	20.0	*4.5	*3.0	*
25-34 years	66.2	58.8	59.9	25.1	33.6	22.9	8.7	*7.7	17.4
35-44 years	63.4	60.4	57.2	30.4	38.1	34.3	*6.2	*1.4	8.5
45-64 years	69.4	53.2	56.1	26.9	36.7	33.3	*3.6	10.1	10.7
65 years and over	83.2	100.0	62.7	16.8	*	37.3	*	*	*

[1]Final estimates. Based on data for the last 6 months of 1980.
[2]Base of percent excludes unknown amount smoked
[3]Includes all other races not shown separately.
[4]A current smoker is a person who has smoked at least 100 cigarettes and who now smokes; includes occasional smokers.
[5]Age adjusted by the direct method to the 1970 civilian, noninstitutionalized population using five age groups.
*Figure does not meet standards of reliability or precision
Note: Data in this table should not be compared with data in Health, United States, 1981 or Health, United States, 1982. The 1980 data in the 1981 edition were preliminary estimates, and the data in the 1982 edition were final estimates but did not include age-adjusted data.
Source: Division of Health Interview Statistics, National Center for Health Statistics Data from the National Health Interview Survey. In National Center for Health Statistics: Health, United States, 1983. DHHS Pub. No. (PHS) 84-1232. Public Health Service. Hyattsville, MD, December 1983.

Table 14

Alcohol consumption—percent distribution, 1977.

Alcohol Consumption		SEX		AGE			FAMILY INCOME			
	Total[1]	Male	Female	20-34 yr.	35-54 yr.	55 yr. and over	Less than $5,000	$5,000-$14,999	$15,000-$24,999	$25,000 and over
Population (1,000)	139,959	65,798	74,162	51,230	46,296	42,432	18,020	52,529	34,630	21,679

PERCENT DISTRIBUTION

Frequency of alcohol consumption:	Total[1]	Male	Female	20-34 yr.	35-54 yr.	55 yr. and over	Less than $5,000	$5,000-$14,999	$15,000-$24,999	$25,000 and over
Never	28.6	21.5	34.2	18.9	25.9	42.7	46.2	30.4	21.1	14.9
Occasionally .	41.9	35.9	46.7	47.3	42.1	35.4	35.0	42.8	45.5	42.5
1 or 2 times a week	15.5	20.2	11.8	19.5	16.1	10.3	10.3	14.8	17.1	20.7
3 or more times a week	14.0	22.5	7.3	14.3	16.0	11.6	8.5	12.0	16.3	21.9
Percent who drink 5 or more drinks at one sitting[1]	29.4	43.1	18.5	43.1	30.2	12.4	20.4	29.2	33.4	36.8

[1]Includes persons with unknown family income.
Source: U.S. National Center for Health Statistics, Advance Data from Vital and Health Statistics, No. 64, November 1980 and unpublished data. In U.S. Bureau of the Census, Statistical Abstract of the United States: 1982-83 (103d edition). Washington, DC, 1982.

Table 15

Alcohol—percent of population who are current users: 1972 to 1979.

Characteristic	YOUTHS			YOUNG ADULTS		ADULTS	
	1972	1976	1979	1976	1979	1976	1979
ALCOHOL[2]							
Current users, total	24	32	37	69	76	56	61
Male	27	36	39	79	84	63	72
Female	21	29	36	58	68	49	52
White	24	34	38	72	78	57	62
Black and other	19	23	29	54	62	50	56
SMSAs with 1 million or more inhabitants[1] . .	24	38	40	78	80	70	72
SMSAs with under 1 million inhabitants[1] . . .	28	33	35	72	75	54	58
Nonmetropolitan areas	20	26	35	55	71	41	51

[1]Refers to standard metropolitan statistical areas as defined in 1970 census publications.
[2]For 1972 and 1976, respondent gave answers orally. Beginning in 1979, respondent marked answer on a private sheet.
Source: U.S. National Institute on Drug Abuse, National Survey on Drug Abuse: Main Findings, 1979. In U.S. Bureau of the Census, Statistical Abstract of the United States: 1982-83 (103d edition). Washington, DC, 1982.

Table 16

Percent of obese adults ages 20-44 years, by race, sex, and income level: United States, 1971-72.

	Percent Obese	
	Male	
Age	White	Black
Income below poverty level[1]		
20-44	9.3	10.9
45-74	15.4	5 1
Income above poverty level[1]		
20-44	17.0	11.3
45-74	13.3	9.7
	Female	
Age	White	Black
Income below poverty level[1]		
20-44	25.1	35.0
45-74	27.6	32.7
Income above poverty level[1]		
20-44	18.6	25.0
45-74	24.7	32.4

[1]Excludes persons with unknown income.

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Chapter X

Utilization of Health Services

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Chapter X

Utilization of Health Services

Overview

In this chapter the health care utilization patterns of the disadvantaged are compared with those of the rest of the population. Medical care utilization is categorized in terms of the following modes of medical care: (1) ambulatory care; (2) inpatient care; and (3) extended care.

The commitment to an equitable distribution of health services among the total U.S. population has spurred an intense interest and investigation into the volume and patterns of health services utilization in the United States. Utilization of health services is not a simple concept. The literature is replete with complex definitions of utilization, contradictory findings, and a plethora of interpretations and summaries.

Since 1964, the number of physician visits per person, per year remained relatively constant up to 1980. For example, in 1964, there were 4.6 physician visits per year per person, and in 1980, 4.7 visits. The relationship between the number of physician visits and age is best described by a U-shaped curve. Old people and the very young tended to use more services. High rates of obstetric visits by women in childbearing years (15 to 44) increase the rates of physician use for this age and sex category. Continuing through old age, females had more physician visits than males. In 1964, the poor tended to have fewer physician visits per person per year than did the nonpoor. By 1975, the differences between the poor and the nonpoor were actually reversed.

The proportion of physician visits in offices decreased from 69.7 percent in 1964 to 67.1 percent in 1980. Also, greater use was being made of physician services in hospital emergency rooms/outpatient departments and by telephone contact. A greater proportion of whites than nonwhites consulted with physicians in the office or by telephone, while proportionally more nonwhites saw physicians in hospital clinics or emergency rooms.

A National Center for Health Statistics survey reported that in 1971, 1975, and 1980 over 80 percent of physician visits were for diagnosis and/or treatment. Most physician visits were made to a general practitioner for medical care, but increasingly, patients began visiting a specialist. Young children were more likely than any other age group to use specialists; females were somewhat more apt to see specialists than males; and whites made greater use of specialists than nonwhites.

Patients who visit a physician five or more times a year make a high demand on the health system. A comparison among the years 1967, 1971, 1975, and 1980 showed no substantial change in the percentage of persons frequently using the system. Both the very young and the elderly were high utilizers. The proportion of high utilizers was about equal between whites and blacks.

The rate of hospital discharges for the U.S. population was 124.4 per 1,000 population in 1975, and 120.0 per 1,000 population in 1980. Thus there was little change over the 5-year period. Hospital discharge

rates were lower for children than any other age group; the rate was highest in the reproductive years and then declined until ages 65 and over, when it peaked once again. By 1980, the percentage of blacks discharged from short-stay hospitals exceeded the discharge rate of whites by 1 percent. Blacks in general averaged longer hospital stays. The length of hospital stay increased steadily with age for blacks and whites.

Sometime in the mid 1970's, nursing home utilization stabilized after a 10-year period of very fast growth. In 1963, there were 25.4 residents in nursing homes per 1,000 population; in 1977, 47.9 per 1,000, an 88.6 percent increase. Fewer than 6 percent of the residents of nursing and personal care homes were nonwhites, and only one-fourth of the residents were male. The proportion of the population 65 years of age and over is growing at a faster rate than that of other age groups. This trend will continue, and utilization of nursing homes, therefore, will continue to increase.

A. Introduction

The examination of utilization data results in some unique insights into the functioning of the Nation's health care delivery system. Such an examination allows an understanding of which parts of the system get used, to what extent, by whom, for what, and why. Although utilization data are analyzed with respect to special health problems in other chapters of this book, utilization is a topic in itself when assessing the health status of subpopulations of our society.

Utilization data have been interpreted in a number of ways that lead to varying conclusions. There are those who contend that higher utilization indicates higher levels of morbidity, since it is need that dictates the use of health services. On the other hand, there are those who argue that certain need levels have always existed, but that health services were not always available or accessible for many people. Thus higher utilization may indicate the improved availability and accessibility of medical care. As stated in "Changes in Morbidity, Disability, and Utilization Differentials Between the Poor and the Nonpoor," by Wilson and White, "It is interesting that in the dental area, where there have been only minimal efforts to increase access to care, there have been no major changes between the poor and the nonpoor in the amount of dental care received. On the other hand, for hospital and physician care, where more program efforts have taken place, there have been reductions or eliminations of differences in utilization between the poor and the nonpoor." (1, p. 641)

This latter interpretation leads to the inference that increased utilization will result in improved health status. Some health economists would state another point of view: that the relationship between utilization and health status is a negatively accelerated function. That is, increased utilization leads to improved health status up to a point, but further utilization results in no additional health status improvements. Even if

this position is correct, it is obvious that, at least for racial/ethnic minorities and the disadvantaged, we have not as yet reached that part of the curve for many health problems where increased utilization has no effect.

This chapter on utilization presents data on the patterns of use of medical services among minority groups compared with the remainder of the population. What is not addressed is the complex issue of the need for medical care as it relates to the use of medical services. Even though utilization rates have increased substantially for minorities and low income groups, the higher levels of morbidity among these populations appear, at least partly, to be the result of unmet medical needs. Minorities' use of health services has increased, and many measures indicate that there has been a concomitant improvement in their health status. Nevertheless, their health status is still not as high as that of the white majority.

Additional caveats on the interpretation of the data presented are contained in Chapter I of this book.

B. Ambulatory Care
1. Physician Visits
Over a 16-year time span, from 1964 to 1980, there was no substantial increase in the average number of per person physician visits (see Table 1). In 1980, there were approximately 1 billion patient contacts with medical doctors (excluding visits to inpatients in hospitals), an average of 4.8 visits per person. This rate is similar to that reported in 1964 (4.6 visits). Although the total visit rate remained static, there were patterns of change occurring among cohorts of the population. For example, Americans earning

over $25,000 steadily decreased their number of visits within this time period, while those at the other end of the family income scale, those earning less than $7,000, increased their number of visits. Between 1965 and 1980, physician visits per person per year increased from 3.9 to 5.5 for lower income persons. Thus in 1964 the poor tended to have fewer physician visits per person per year than did the nonpoor. By 1975, however, the differences between the poor and the nonpoor were actually reversed.

Each of the categories within each of the demographic variables listed in Table 1 reflects an increase in per person visits between 1964 and 1975, with the exception of persons 65 years and over, and those with family incomes of $25,000 and over. Each of the categories within each of the demographic variables either remained the same or showed a decrease in per person visits for the years 1975 to 1980 (except patients under 17 years of age). One interpretation of these data is that utilization of physician services is sensitive to the economy. Thus the reversals in the economy that occurred from 1975 to 1980 would have affected the general trend toward greater physician utilization.

Another characteristic of physician services utilization is that it is directly related to age groups. For each of the reported years—1964, 1975, 1980—the number of physician contacts per person per year increased for each higher age group. In 1980, the rates ranged from 4.4 for persons under 17 years to 6.4 for persons 65 years and over. Also, females continued to have more per person visits to a physician than males. Females had an

average visit rate of slightly over one more visit per year than males in 1964, 1975, and 1980. In the past, this higher utilization rate seemed to be due to only one factor, visits for prenatal and postnatal care and associated problems. With the passage of time, an additional factor appears to be having an effect: age. The aged population is a higher utilizer of physician services, and because of the greater longevity of females, a larger component of that age group is female.

In 1964, residents in the West had the highest per person physician visit rate, with 5.5 visits per year, compared with 4.3 in the South, the region with the lowest rate. By 1980, the visit rate had decreased in the West and increased in the South to the point where the rates were somewhat similar (West, 4.9; South, 4.6). Actually, by 1980 there was little regional variation in the annual number of physician visits.

2. Office-Based Physician Visits
The majority of people visiting a physician do so in the doctor's office. In the National Health Interview Survey, an office refers to the office of any physician in private practice, including physicians connected with prepaid group practices (2, p. 77). In 1980, 67.1 percent of all physician visits took place in the doctor's office, while only 13.1 percent of visits occurred in an outpatient department or emergency room, despite the fact that outpatient departments and emergency rooms are becoming popular centers for physician visits (3, p. 128).

The proportion of people seeing a physician in his or her office also has remained relatively constant over the period from 1964 to 1980.

Over that period, a greater percentage of whites than blacks saw a physician at the office. Also, more of the non-poor had office visits than the poor. The high cost of office-based medical care may be one factor accounting for these differences. Visits to many other settings for health care usually are financed totally through third-party coverage. Also, as people get older, they have more of their physician contacts in a doctor's office. This may be due to their clinging to established patterns of health services utilization. It is important to note that the Medicare programs were not implemented until 1966. Some of the changes after 1964 in physician utilization noted above probably reflect the impact of these programs.

A larger proportion of nonmetropolitan residents than metropolitan residents visited a physician in a physician's office in 1964, 1975, and 1980.

3. Outpatient Department/ Emergency Room Physician Visits
As reported earlier, there is an increasing trend (albeit a slowly increasing trend) for physician visits to take place in hospital outpatient departments and emergency rooms. The groups using this treatment setting in greater proportions are the converse of those using physicians' offices: a greater percentage of younger patients than older patients use this setting; a greater percentage of males than females; a greater percentage of blacks than whites; a greater percentage of the poor than nonpoor; a greater percentage of those in the Northeast region than other geographic regions, at least recently; and a greater percentage of urban than rural residents.

From 1964 to 1980, there has been only a slight in-

crease in the use of the hospital outpatient department and emergency room (12.2 percent of the physician visiting population in 1964, and 13.1 percent in 1980). There are, however, cohorts of the population that have shown significant increased usage over the years: each age group, except those under 17, shows a small but steady proportional increase in emergency room/outpatient department usage; the percentage of males using these facilities for a physician visit also shows a small but steady increase (13.2 percent in 1964; 15.4 percent in 1980), as do those in the higher income brackets; and patients living in the Northeast have also increased their visits to these locations (10.1 percent in 1964; 15.7 percent in 1980).

Many of these increases may be due to the manner in which physicians use these facilities relative to their originally intended purposes. Emergency rooms, for example, were initially established for providing care to trauma victims and patients with acute conditions. Now physicians refer their patients to the hospital emergency room or outpatient department for several reasons, including inability to accommodate the patient within the daily office schedule, the availability of better equipment, and some physicians, unwillingness to accept certain third-party payers.

Although the percentage of blacks using hospital outpatient facilities for physician visits is clearly greater than the percentage of whites, the proportion of black usage has decreased from 1964 (32.7 percent) to 1980 (26.2 percent). Many have predicted that black and white use of emergency room/outpatient department service will converge over

time. Although the data indicate that this is occurring, the convergence appears to be taking longer than other white/black utilization trends.

4. Telephone Contact with Physicians

By National Health Interview Survey definition, telephone contact with a physician constitutes a physician visit even though there is no physical encounter between the physician and the patient (4, p. 53). Between 1964 and 1980, the proportion of telephone contacts increased, but not greatly (1.8 percent). A greater percentage of the very young used the telephone (presumably the call was made on their behalf by an adult) for physician contact than did the elderly. In 1980, 17.3 percent of those under 17 years used the telephone, compared to 8.9 percent of those over 65 years of age. Over the years, a greater percentage of the young have always used telephone contact for physician advice. Of interest are the changes over time that occurred between the young and the elderly. More patients aged 17 to 44, and more of those aged 45 to 64, used the telephone in 1980 than in 1964, a respective increase of 3.2 percent and 4.1 percent.

A larger proportion of females than males has always used the telephone for physician contact, although the proportion of male usage increased a full 2 percent from 1964 to 1980 (9.3 percent in 1964; 11.3 percent in 1980).

Proportionately far fewer blacks than whites contacted a physician by telephone; however, the percentage of physician telephone contacts by blacks increased from 4.2 percent in 1964 to 5.5 percent in 1980. Despite this increase, there continues to be a large gap (an 8.3 percent

difference) between telephone contact by blacks and whites. In 1975, a substantially larger proportion of blacks used the telephone for physician advice; in that year, however, whites also increased their usage and so the gap between the two groups remained.

Over time a consistently greater percentage of those patients in the higher income groups use telephone physician contact than patients in the lower income groups. A change is occurring, however, among the lower income groups. A much larger proportion of families earning less than $10,000 used telephone contacts in 1980 than in 1964. A steady increase in telephone usage is also obvious among the population residing in nonmetropolitan areas.

5. Primary Reasons for Physician Encounters

"In the National Health Interview Survey, respondents who reported a physician visit were asked why they consulted a physician. Responses to that question were classified into the following type of service categories: diagnosis or treatment; prenatal and postnatal care; general checkup; immunization and vaccination." (5, p. 26) Except for the diagnosis or treatment category, all of the categories include physician visits made by persons who are practicing at least some of the basic notions of good preventive health care. Chapter IX discusses patients making physician visits for preventive health care.

More than 80 percent of the physician visits across the 9 years reported in Table 2 were made for diagnosis and treatment. Diagnosis or treatment of conditions had been the predominant reason that physicians were consulted

over the years studied, accounting for 81.4 percent of all physician visits in 1971; 84.9 percent in 1975; and 84.4 percent in 1980.

In almost every data set, females are shown to use the system more than males. For visits relating to diagnosis and treatment, however, a lower percentage of females than males saw a physician. In 1980, there was a 5.5 percent difference between females and males seeking diagnosis or treatment from a physician. The percentage of both sexes seeking diagnosis and treatment increased from 1971 to 1980, but, still, a greater percentage of these were males.

When examining the age characteristics of visits for diagnosis and treatment, a pattern becomes obvious. Those under 35 years of age had a noticeably smaller proportion of diagnosis and treatment visits in the last decade than persons over 35 years of age (a 10 percent difference obtained in 1971 and 1980, although the difference was less in 1975). The only exception to this pattern was the 5- to 14-year-olds, whose proportions of visits for these purposes were closer to those of the 35- to 44-year-old bracket. In the upper age groups, very high proportions of patients visited a physician for purposes of diagnosis and treatment, and these age groups most often visited for the treatment of chronic conditions.

There does not appear to be much of a difference in this category between blacks and whites. Although there was a 5.4 percent difference between the poor and nonpoor at the beginning and middle of the decade, that difference had narrowed to 1.8 percent by the end of the decade.

As might be expected, a greater proportion of visits for diagnosis or treatment were made by persons unable to carry on a major activity. Visits for these purposes proportionally decreased as the gradation of activity limitation itself decreased.

When looking at the data for the Nation's various geographic regions, it is obvious that the differences are small, diminishing from 2.7 percent in 1971 to 1.7 percent in 1980. No distinct patterns emerge from these data.

6. Visit Frequency by Physician Type

For all specialties of office-based ambulatory care, more visits per person were made in both 1975 and 1980 to family and general practice physicians (GP's) than any other specialty (see Table 3). The rate had decreased by 0.25 visits per person between 1975 and 1980. Still, the lower 1980 rate was about three times greater than the second most utilized specialty, internal medicine. While this rate of visits per person has decreased for GP's, it has increased for every specialty except general surgery. The specialty showing the greatest increase from 1975 to 1980 in visits per person is pediatrics.

Each of the higher age groups reflected less usage from 1975 to 1980 of the family and general practice specialty. Although the reduction is not as dramatic, the specialty of general surgery also reflects less usage for each age group. Among children under 15 years of age, there was a sharp rise in the rate of visits to a pediatrician from 1975 to 1980, and a substantial decrease in visits to family practitioners. About a one-half-visit-per-person decrease for GP's occurred within the

45-65 age group. It should be noted that the identical decrease occurs for this age group's rate of visits to all specialties combined. The rate of visits increased with each incremental age group in both 1975 and 1980 for general and family practice, internal medicine, and general surgery. This did not occur, obviously, for obstetrics and gynecology, since this specialty is both sex and age selective. Of course, visits per person to office-based physicians increased with age, as shown in Table 1; Table 3 simply delineates what *type* of office-based physician these age groups visited.

Both males and females decreased their visits to GP's from 1975 to 1980 while slightly increasing their use of internists. In this period, both sexes also decreased their visits to general surgeons, although the female decrease was about twice that of the male. A greater percentage of females visited a doctor's office in both years, and they made more visits than males did to physicians specializing in family practice, internal medicine, general surgery and, of course, obstetrics and gynecology.

With respect to race "all other" races contributed more to the decrease of GP usage from 1975 to 1980 than whites did (whites manifested a 0.23 visit per person decrease; "all other" showed a 0.35 per person visit decrease), while both racial groups contributed almost equally to the decline in general surgery usage (whites showed a 0.07 visit per person decline; "all other" showed a 0.05 decline). Whites are somewhat more responsible for the increased rate of visits to an office-based pediatrician than "all other" (a 0.12 per person increase for

whites during the reported time interval, and a 0.08 increase for "all other").

There are indications across all demographic variables of an increased use of specialty physicians. Perhaps this represents the long-term, overall trend toward increased proportions of specialty physicians, and possibly it also represents a change in that part of health education that deals with health care delivery system usage. That is, it is likely that more people recognize the differences among the specialties and when to use these specialties for certain symptoms.

7. High Utilizers of Physician Services

"Higher frequencies of disease as well as more severe maladies require more frequent visits, whereas whether or not any visit took place is more sensitive to the use of services for preventive purposes." (6, p. 44) Thus, data and analyses for the time interval since the last physician visit are found in Chapter IX, "Preventive Health." Presented here is information about those patients who make a high demand on the health system, defined by data sources as those who visit a physician five or more times in a reported year (see Table 4). These patients use the system more than most of the population, presumably for illnesses from chronic conditions, illnesses of great severity, or several incidents of symptoms requiring medical attention.

A comparison of the reported years in Table 4, 1967, 1971, 1975, and 1980, shows no substantial change in the proportion of persons who visited a physician five or more times throughout each of the years. These high utilizers represent about 20 percent of the population.

Thus these visits are concentrated within a relatively small proportion of the population.

A higher proportion of females than males had five visits or more (there was an 8 percent difference between the sexes in 1980). Since these data are not age specific, it is impossible to determine the extent to which the high utilization for females occurs during the childbearing years. The fact that the 25-34 age group has elevated rates of usage compared to the general age-related trend indicates that there probably is some effect from childbirth.

The consumption of physician services is traditionally high among children and the elderly. For each of the 4 reported years, the rate was high for children under 5 years of age, and another peak occurred for the age group 65 years and over. Generally, about 30 percent of the children (those under 5 years of age) are high utilizers; 30 percent of those age 65 to 74 are high utilizers; and 30 percent of those over 75 are high utilizers.

To determine poor and nonpoor categorization, the *Statistical Abstract of the United States* was examined for poverty level data for the reported years in this analysis. The poverty levels for these years were reported as $3,435 for 1967 (determined by averaging the respective poverty level incomes for 1966 and 1968); $4,137 for 1971; $5,500 for 1975; and $8,414 for 1980 (7, p. 440). The broad family income categories included in the National Health Interview Surveys used for this analysis do not precisely match the above poverty level figures. Some liberty has been taken, therefore, to a match the numbers so some observations can be

made about the utilization rates of the poor and nonpoor.

In 1967, there was little difference (1.8 percent) in the proportion of poor who made five or more visits to a physician throughout the year. In 1980, there was a 6.0 percent difference. The percentage of both poor and nonpoor high utilizers increased, but the poor high utilizers increased at a greater pace. Some of this proportional increase among the poor may be attributable to the effect of Medicaid programs.

Once these Medicaid programs were initiated, implemented, and accepted, the continual effect must be noted. Poor patients, for example, for whom some financial barriers were lifted, came to be treated over many years for chronic conditions which were diagnosed at their first visit(s) to physicians under the Medicaid plan. There was also a continuing expansion of Medicaid enrollment throughout the mid to late 1970's. In 1970, the ratio of Medicaid recipients to the population below the poverty level was 0.59. By 1976, the ratio increased to 0.91 (8, p. 48).

In 1967, a larger percentage of whites than nonwhites were high utilizers of the physician visit sector of the ambulatory care system. At that time, a 5.6 percent difference was reported (20.4 percent for whites, 14.8 percent for nonwhites). In 1980, that gap was almost eliminated: 20.9 percent of whites had five or more visits compared to 20.5 percent of nonwhites. Since the closing of this gap was systematic across the 13-year period, the effect is probably real.

As may be expected, a higher proportion of persons with major activity limitation have five or more physician visits than persons with no

activity limitation. The differences are significant and dramatic. Of those patients who are unable to carry on a major activity, such as keeping house or working, about 50 percent have been seeing a physician five or more times per year. In contrast, only 16.6 percent of those not limited in activity were in the high utilization category. The proportional decrease in physician visits among those not limited in activity (from 25.3 percent in 1967 to 16.6 percent in 1980) may indicate an actual decline in the incidence of activity-limiting conditions, or it may indicate that successful rehabilitation services or corrective treatments were performed while the person was in previous years counted among those limited in activity. In the early periods, about twice the percentage of persons in the "high activity limitation" group, compared with the "no activity limitation" group made five or more physician visits. That differential, however, has increased over time. In the later periods, the percentage of persons in the "high activity limitation" group who made five or more visits is approximately three times that of the "no activity limitation" group.

During the reported year, 1967, there were some obvious differences among the geographic regions for high users of physicians' services. Persons residing in the South, for example, had a lower proportion of high utilizers (17.5 percent) than those in the West (22.1 percent). For the last reported year, 1980, there was no discernible difference among the four geographic regions.

A large-scale view of the data reveals both a long-term trend, and a short-term trend. Within the long-term trend, some demographic sub-

categories showed systematic increases in the proportion of persons who were high users, and some showed a decrease. Overall, there was an increase of 1.1 percent across the time period, and both sexes demonstrated that increase (although females showed more of an increase). The increase was also demonstrated by the two lower age groups (below 15 years of age), and the three highest age groups (over 54 years of age), but the age groups in between (15 to 55 years of age) showed a decrease in the proportion of high users. The poor revealed a decrease, and the nonpoor a very modest decrease. Nonwhites reported an increase, and whites a modest decrease. The upper two categories of activity limitation showed an increase, the lower two categories a decrease. All of the geographic regions showed an increase, except the West, which showed a decrease. Thus it appears that all of the generally high-user groups were showing increases, while the low-user groups were showing no changes or were showing decreases, sometimes drastically.

The short-term trend has been obvious in most of the utilization data reviewed. That is, a fairly large increase in health care utilization occurred in the early to mid 1970's followed by a return to pre-1970 levels by the end of the decade. We might surmise that the increase in the middle of that period was due to the effects of the Medicare and Medicaid programs, and the decrease at the end to the downturn of the economy. If this is correct, there should be a return to the increased utilization following improvements in the Nation's economy.

C. Inpatient Care

1. Discharges from Short-Stay Hospitals

"While the findings for physician visits suggest variations in access to ambulatory care services, hospitalization data reflect who makes the greatest demand upon the more intensive (and expensive) inpatient care services." (14, p. 120) In recent years, those most obviously making that demand were the elderly and the poor. These are the groups, of course, with relatively high proportions of persons with severe morbidity.

"Although ambulatory health care appears to offer better prospects for emphasis than inpatient hospital care because it provides some prevention and much earlier detection of disease, it is in inpatient care that the major part of medical care expenditure, both capital and operating is incurred at present. Increased emphasis on ambulatory care and the avoidance of inpatient care can be expected to reduce the overall costs, and it is of interest, therefore, to examine the variations in hospital use . . . " (15, p. 90) These variations are examined in Table 5 relative to discharges from short-stay hospitals over a 5-year period from 1975 to 1980.

The total number of hospital discharges showed a slight decline from the beginning to the end of the 5-year reported period (124.4 per 1,000 population in 1975, and 120.0 per 1,000 in 1980). Annual rates of discharges increased significantly with each older age group for both years. Discharge rates for patients 65 years or older were almost 4.5 times greater than those for patients 17 and younger in 1980. Although each of the age groups

demonstrated a proportional decrease of use in the 5-year period between 1975 and 1980, the oldest patients reported a 2.7 percent increase, while the other age groups each reflected a decrease.

There were proportionally more female than male hospital discharges in both years, although the differences were not great (a 1.4 proportional difference in 1975, decreasing to 0.2 in 1980). The differences noted between the sexes are not due to births, since delivery discharges were excluded from the summary data in Table 5. While the proportion of male discharges was either increasing slightly or remaining static, the female rate dropped.

While black discharges from 1975 to 1980 either remained static or increased slightly, the disparity between white and black discharge rates doubled (from 0.5 to 1.0 percent), but the differences remain slight.

Approximately 50 percent more low income persons had hospital discharges than those at the top of the income scale; the ratio remained relatively constant during the time period. In both 1975 and 1980, there was a 5.5 percent difference in the discharge rate between these two economic groups. All age groups manifested a decrease in the proportion of hospital discharges during the period studied, probably reflecting the economic changes noted in the previous section of this chapter.

Discharges from short-stay hospitals by geographic region were proportionally

highest in the South in both 1975 and 1980. Also, each of the other regions reported decreased discharges (largely in the West, with a 2.1 percent decrease), while the South's appeared to increase slightly. The South was the only region not to post a decrease in proportions of discharges over the time period. As for location of residence, those outside SMSAs increased their hospital discharges by 0.5 percent, while residents of SMSAs decreased their proportion almost a full percent, causing nonurban residents to proportionally exceed those within SMSAs by a ratio of 1:28.

2. Length of Stay within Short-Stay Hospitals

There was a decline in the average length of stay from 7.5 days to 7.1 days during the 5-year period 1975 to 1980 (see Table 6). The decline cut across most demographic categories, but seemed greater among the groups that are the high health service utilizers: the elderly, those with the lowest family income, females, blacks, Northeasterners, and SMSA residents. Perhaps the demographic category that manifested the most dramatic drop was the elderly, who had an average length-of-stay decrease of 2 days.

The poor (those with incomes less than $7,000) also continue to place a high demand on hospital care with their longer lengths of stay. Like the elderly, however, they have reduced their hospital bed time from 9.6 days in 1975 to 8.4 days in 1980. In 1980, low income people remained in the hospital an average of 2.4 days longer than those in the highest income group, prob-

ably because of the lower health status of these individuals.

Length of stay declined for both blacks and whites from 1975 to 1980; however, blacks continued to remain in the hospital an average of more than 2 days longer than whites did. The ratio between these two racial groups, however, appeared to drop slightly (from 1.36 to 1.33).

Female length of stay decreased by 0.7 days from 1975 to 1980, while the male average length of stay remained constant. By 1980, females spent almost 1.5 fewer days in the hospital per hospitalization than males did, excluding the effects of deliveries. If deliveries were included in the data, the female length of stay would be even more reduced, causing the disparity between males and females to be even greater.

3. Surgical Procedures within Short-Stay Hospitals

Part of the increase in hospital use can be attributed to higher surgery rates. These rates have continued to rise over time, overall at a slow but steady pace, and by some selected characteristics at an alarmingly fast pace. All of this is of particular concern, since the data for both acute and chronic conditions reveal no change in the prevalence of conditions that would lead to the sudden need for surgical intervention. This greater occurrence of surgery over the past years may be due to more, and highly sophisticated, medical technology, increased specialization among physicians, and advanced surgical techniques.

In Table 7, surgical rate data are presented for 1975 and 1980. There are two major differences between these data and the hospital utilization data presented previously in this chapter. One difference is that the previous tables excluded delivery data, Table 7 includes them. The second difference is that the previous tables were derived from information collected by the National Health Interview Survey, whereas Table 7 is "based on data collected through the National Hospital Discharge Survey, a continuous survey that has been conducted by the National Center for Health Statistics since 1965. The data for the survey are obtained from the fact sheets of a sample of the medical records of inpatients discharged from a national sample of short-stay general and specialty hospitals in the United States."(9, p. 1)

Questions have been raised about the quality of data from this source for a number of reasons, including the assertion that the abstracts of such records are frequently prepared by undertrained, undermotivated, and under-paid hospital clerks. One indication of the quality of the data presented in Table 7 is that almost 12 percent of the data for race were not collected (a proportion almost equivalent to the nonwhite proportion of discharges). There is no reason to believe, however, that the quality changed between the beginning and the end of the time period, so the conclusions that are drawn below are probably legitimate despite the sources of inaccuracy in the data generally.

In referring to Table 7, only the data in the last column, the percent column, are used for comparisons, both between the years and among the characteristics. The use of this percent column is in response to a suggestion found in the literature which accompanied the data: "These last figures are included to provide data that are comparable with what is published for years prior to 1979." (16, p. 8)

In the 5-year period from 1975 to 1980, hospital discharges rose over 11.1 percent, while surgical rates among discharges rose over 19.8 percent. Almost 45 percent of hospitalized patients received surgery in 1980. The age group that demonstrated the largest proportional increase, and a significant one, is the 15 to 44 age group. Over the 5-year period, their proportion of surgical discharges increased almost 10 percent. There was a slight increase among the proportion of elderly discharges who received surgery, but a decline among the remaining two age groups. No more than 20.4 percent of the increase in the 15 to 44 age group was due to procedures relating to childbirth (approximately 2,289,000 more surgical procedures for this group and approximately 468,000 additional births, some of which were to women outside this age group). The surgical rates for males remained relatively constant; the rates for females rose 13.6 percent. The number of births in 1980 reflected a 14.9 increase over 1975, making up more than the increased surgical rate between those two years.

The highest percentage of persons having had surgery, for both 1975 and 1980, occurred in hospitals in the West, but that region did not show the greatest change in surgical rates. The South had a 10.5 percent increase in surgical rates between 1975 and 1980, the North Central region had a change of 0.7 percent, the West a change of 8.3 percent, and the Northeast the smallest of change, 3.5 percent.

D. Extended Facility Care
"Long term care facilities include long-stay psychiatric and other hospitals (i.e., hospitals with an average length of stay of 30 days or more), nursing homes, facilities for the mentally retarded, homes for dependent children, homes or resident schools for the emotionally disturbed, resident facilities for drug abusers or alcoholics, and various other institutions. Inpatient long term facilities provide continuing care for patients who are not expected to improve mentally or physically, and extended care to help patients who are ready to return home but still need some nursing or therapy services on a regular basis.

"Most extended care facilities are in nursing homes. Nursing homes provide both restorative care for convalescing patients and continuing care for the elderly. Nursing care homes provide less intensive nursing and medical services than acute care hospitals. These homes have multiplied as the demand for these services by the elderly population has increased. The trend of greater demand is expected to continue in the future as life expectancy increases. Three reasons for greater use of

these services are: Medicare and Medicaid cover these services, third-party payers apply pressure on short-stay hospitals to discharge patients no longer needing acute care services, and relatives may be unable or reluctant to care for their own elderly." (10, p. 131)

Numbers, percentage distributions, characteristics, etc., of patients within some of the long-term institutions mentioned above are discussed in Chapter VIII. In this section, attention is focused on the elderly, particularly those residing on a long-term basis in nursing homes. In 1977, the National Center for Health Statistics conducted a nationwide sample survey of nursing homes. These are the most current data available pertaining to nursing home utilization. Other data relating to the elderly—health status, mobility, living arrangements, etc.—have been collected through the National Health Interview Survey.

The proportion of the population 65 years of age and over is growing at a faster rate than that of other age groups, and the proportion 85 years of age and over is growing even more rapidly. According to the Bureau of the Census, in 1981 those 65 years of age and over made up 11 percent of the population (11, p. 27). This trend is expected to continue, and it is predicted that 25 percent of the elderly will be institutionalized at some time during their later years (12, p. 504). If this prediction is accurate, then utilization of nursing homes will increase at a very rapid rate.

Table 8 reports the number of elderly nursing home and personal care home residents for the years 1963, 1969, 1973-74, and 1977. Over this 14-year period, the number of nursing home residents increased an astounding 153 percent. The increase in the population over 65 from 1963 to 1977 was approximately 36 percent. Thus not even one-quarter of this increase represents the proportional increase of the elderly population over this period of time.

"The rate of nursing home use stabilized between 1973-74 and 1977, following a decade of extremely rapid growth. The earlier upsurge in use resulted when eligibility requirements for public payments for nursing home care were liberalized in the mid-1960's and then again in 1972, particularly under the Medicaid program. Use of nursing homes also increased as elderly patients were shifted from long term psychiatric institutions to nursing homes. This shift occurred because States could receive Federal matching funds under Medicaid for nursing home care but not for care provided in long term psychiatric hospitals. Prior to Medicaid, eligibility for public payments was so limited that many potential nursing home users were unable to obtain such care." (13, p. 38)

As might be expected, females, who are longer lived, used nursing homes at a higher rate than did males, and the female-to-male ratio increased systematically and substantially over the 4 reported years: 2.15 (1963), 2.48 (1969), 2.62 (1973-74), and 2.83 (1977). The population in nursing homes has been predominately white (over 90 percent). The percentage of all other races (Hispanics are counted among the white) residing in nursing homes has shown a systematic increase, at first small, and then increasing suddenly in the last 3 years of the reported period. The percentage of all other races in the 4 years reported was 3.1, 3.7, 4.3, and 5.9.

Over the 14-year period studied, the number of elderly residents in nursing homes increased by 88 percent. In 1977, 1.5 percent of those 65 to 74 years of age were in nursing homes, but 6.8 percent of those 75 to 84 years of age and 21.6 percent of those 85 years of age and older were in nursing homes, reflecting the greater use of these facilities with increasing age.

Table 1

Physician visits, according to source or place of care and selected patient characteristics: United States, 1964, 1975, and 1980.

Selected characteristic	All sources or places[1]			Physician visits[1] Doctor's office or clinic or group practice			Hospital outpatient department[2]			Telephone		
	1964	1975	1980	1964	1975	1980	1964	1975	1980	1964	1975	1980
	Number per person			Percent of visits								
Total[3,4,5]	4.6	5.0	4.7	69.7	67.1	67.1	12.2	13.2	13.1	11.0	13.1	12.8
Age												
Under 17 years	3.7	4.2	4.4	62.2	62.2	63.1	13.7	14.6	13.1	18.3	17.7	17.3
17-44 years	4.6	5.0	4.4	73.8	66.1	66.4	13.0	13.7	14.2	8.1	12.2	11.3
45-64 years	5.0	5.6	5.1	76.8	72.6	70.7	10.0	12.1	12.3	6.1	9.7	10.2
65 years and over	6.7	6.6	6.4	64.2	76.2	75.7	8.5	9.0	10.2	8.2	8.5	8.9
Sex[3]												
Male	4.0	4.4	4.1	69.9	65.4	65.7	13.2	15.0	15.4	9.3	11.5	11.3
Female	5.1	5.6	5.3	69.5	68.1	68.0	11.4	12.0	11.6	12.2	14.1	13.8
Race[3,6]												
White	4.7	5.1	4.8	71.0	68.1	68.4	10.2	11.9	11.3	11.7	14.0	13.8
Black[7]	3.6	4.9	4.6	56.2	58.5	57.0	32.7	23.5	26.2	4.2	7.0	5.5
Family income[3,8]												
Less than $7,000	3.9	5.9	5.5	62.0	60.1	58.8	25.9	19.7	20.7	4.8	10.0	9.1
$7,000-$9,999	4.2	5.2	4.4	65.2	64.0	61.7	22.3	17.9	16.0	6.6	9.8	13.8
$10,000-$14,999	4.7	5.0	4.9	69.5	64.5	66.1	11.1	16.1	14.0	11.7	12.9	13.2
$15,000-$24,999	4.8	4.9	4.7	71.5	68.6	70.5	7.4	12.4	10.8	13.8	13.7	12.9
$25,000 or more	5.2	5.0	4.6	72.9	70.2	70.6	6.7	8.9	9.0	12.9	15.7	14.5
Geographic region[3]												
Northeast	4.5	5.3	4.7	67.2	63.4	63.0	10.1	15.5	15.7	11.5	14.0	13.6
North Central	4.4	4.7	4.7	72.2	68.4	69.4	10.6	11.7	10.7	11.7	14.7	14.9
South	4.3	4.6	4.6	68.9	67.7	66.8	14.0	13.1	13.2	11.0	11.2	11.3
West	5.5	5.9	4.9	70.9	69.1	69.2	14.3	12.7	13.0	9.5	12.9	11.4
Location of residence[3]												
Within SMSA	4.8	5.3	4.9	68.2	65.6	66.1	12.3	14.0	13.8	12.1	13.6	13.1
Outside SMSA	4.1	4.4	4.4	72.9	71.0	69.5	11.9	11.4	11.3	8.8	11.9	12.0

[1]Does not add to 100 percent because it does not include all sources or places (e.g., house calls)
[2]Includes hospital outpatient clinic or emergency room.
[3]Age adjusted by the direct method to the 1970 civilian noninstitutionalized population, using 4 age intervals
[4]Includes all other races not shown separately.
[5]Includes unknown family income.
[6]In 1964 and 1975, the racial classification of persons in the National Health Interview Survey was determined by interviewer observation. In 1980, race was determined by asking the household respondent.
[7]1964 data are for all other races
[8]Family income categories for 1980. Adjusting for inflation, corresponding income categories in 1964 were: less than $2,000, $2,000-$3,999, $4,000-$6,999, $7,000-$9,999 and $10,000 or more; and, in 1975 were: less than $5,000; $5,000-$6,999; $7,000-$9,999; $10,000-$14,999; and $15,000 or more.
Source: National Center for Health Statistics: Data from the National Health Interview Survey, Division of Health Interview Statistics In Health United States, 1982. DHHS Publication No. (PHS) 83-1232. Hyattsville, MD, 1982.

Table 2

Percent distribution of physician visits for diagnosis and treatment, according to selected characteristics: United States, selected years.

Characteristic	1971	1975	1980
	Percent distribution		
All persons[1]	81.4	84.9	84.4
Sex			
Male	83.9	87.0	87.6
Female	79.6	83.4	82.1
Age			
Under 5 years	74.8	79.6	77.8
5-14 years	84.2	86.4	86.9
15-24 years	72.6	77.5	75.5
25-34 years	75.0	80.4	77.7
35-44 years	85.0	86.7	87.3
45-54 years	87.1	88.8	92.2
55-64 years	83.0	91.5	91.4
65-74 years	88.9	91.1	91.2
75 years and over	87.9	91.3	90.2
Race[2]			
White	81.3	84.9	84.7
Black	82.6	85.1	82.7
Family income			
Poor	85.5	88.8	85.5
Nonpoor	80.1	84.0	83.7
Activity limitation			
Unable to carry on major activity[3]	94.6	94.6	95.8
Limited in amount or kind of major activity[3]	93.0	94.1	93.9
Limited but not in major activity	88.8	91.2	92.6
Not limited in activity	77.6	81.3	80.3
Geographic region			
Northeast	82.3	85.2	83.4
North Central	79.7	84.7	84.7
South	82.4	83.8	85.1
West	81.0	86.3	83.9

[1]Includes races other than White or Black, and unknown family income.
[2]In 1971, Black race includes "All Other" races.
[3]Major activity refers to ability to work, keep house, or engage in school or preschool activities

Source: Compiled and abstracted by CHESS from 1) National Center for Health Statistics: Physician visits, volume and interval since last visit. United States, 1971. DHEW publication no. (HRA) 75-1524. Series 10, Data from the National Health Survey, no. 97, U.S. Government Printing Office, Washington, DC, March 1975. 2) National Center for Health Statistics: Physician visits, volume and interval since last visit: United States, 1975. DHEW publication no. (PHS) 79-1556. Series 10, Data from the National Health Survey, no. 128 U S Government Printing Office, Washington, DC, April 1979. 3) National Center for Health Statistics: Physician visits, volume and interval since last visit. United States, 1980. DHHS publication no. (DHHS) 83-1572. Series 10. Data from the National Health Survey; no. 144 U S. Government Printing Office, Washington, DC, June 1983

Table 3

Office visits to physicians, according to physician specialty and selected patient characteristics: United States, 1975 and 1980.

Selected characteristic	All specialties[1]		General and family practice		Internal medicine		Obstetrics and gynecology		Pediatrics		General surgery	
	1975	1980	1975	1980	1975	1980	1975	1980	1975	1980	1975	1980
	Visits per person											
Total[2]	2.69	2.63	1.11	0.86	0.28	0.30	0.22	0.23	0.25	0.37	0.19	0.13
Age												
Under 15 years	1.89	2.21	0.65	0.54	0.04	0.03	0.02	0.01	0.83	1.20	0.05	0.05
15-44 years	2.52	2.36	1.03	0.81	0.20	0.20	0.44	0.48	0.03	0.04	0.19	0.12
45-64 years	3.43	2.99	1.52	1.08	0.56	0.58	0.13	0.12	0.00	0.00	0.33	0.20
65 years and over . . .	4.26	4.22	1.94	1.56	0.82	0.95	0.05	0.06	0.00	0.00	0.34	0.22
Sex[2]												
Male	2.25	2.25	0.95	0.73	0.25	0.28	0.00	0.00	0.26	0.39	0.16	0.12
Female	3.14	2.98	1.25	0.98	0.32	0.33	0.42	0.44	0.25	0.34	0.22	0.13
Race[2,3]												
White	2.76	2.73	1.12	0.89	0.29	0.31	0.22	0.23	0.27	0.39	0.20	0.13
All other	2.25	2.03	1.05	0.70	0.23	0.24	0.23	0.23	0.17	0.25	0.13	0.08

[1]Includes other specialties not shown separately.
[2]Age adjusted by the direct method to the 1970 civilian noninstitutionalized population, using 4 age intervals.
[3]A change in the coding procedure for racial categories in 1980 may be partially responsible for the drop in office visits for the all other racial group
Note: Rates are based on the civilian noninstitutionalized population, excluding Alaska and Hawaii.
Source: National Center for Health Statistics: Data from the National Ambulatory Medical Care Survey, Division of Health Care Statistics.
In Health United States, 1982. DHHS Publication No. (PHS) 83-1232. Hyattsville, MD, 1982

Table 4

Percent distribution of persons with five or more physician visits per year, according to selected characteristics: United States, selected years.

Characteristic	1967	1971	1975	1980
	Percent distribution			
All persons[1]	19.7	22.0	22.4	20.8
Sex				
Male	15.7	17.7	17.9	16.7
Female	23.4	26.2	26.2	24.7
Age				
Under 5 years	27.3	32.8	32.1	31.5
5-14 years	10.1	11.8	12.2	12.3
15-24 years	18.4	19.9	19.2	17.2
25-34 years	22.1	23.7	23.0	21.2
35-44 years	18.6	19.6	20.1	17.7
45-54 years	20.0	22.4	22.8	19.5
55-64 years	22.5	26.4	27.7	25.1
65-74 years	28.6	31.6	32.6	30.8
75+ years	30.1	34.9	37.1	33.6
Family income				
Poor	21.4	25.7	27.9	25.4
Nonpoor	19.6	21.3	21.5	19.4
Race[2]				
White	20.4	22.5	22.4	20.9
Nonwhite	14.8	18.9	21.7	20.5
Activity limitation				
Unable to carry on major activity[3]	46.8	53.0	56.8	53.1
Limited in amount or kind of major activity[3]	43.0	48.3	48.2	46.9
Limited, but not in major activity[3]	40.0	36.8	36.2	34.4
Not limited in activity	25.3	18.5	18.1	16.6
Geographic region				
Northeast	20.9	22.8	23.3	21.4
North Central	19.5	20.9	21.7	20.7
South	11.5	21.1	21.2	20.0
West	22.1	24.5	24.1	21.5

[1]Includes races other than White or Black, and unknown family income
[2]In 1967 and 1971, Black race includes "All Other" races
[3]Major activity refers to ability to work, keep house, or engage in school or preschool activities.
Source Compiled and abstracted by CHESS from 1) National Center for Health Statistics Volume of physician visits United States, July 1966-June 1967 DHEW publication no (HRA) 76-1299. Series 10, Data from the National Health Survey; no 49 U S Government Printing Office, Washington, DC, November, 1968. 2) National Center for Health Statistics: Physician visits, volume and interval since last visit United States, 1971 DHEW publication no. (PHS) 75-1524. Series 10, Data from the National Health Survey, no. 97 U S Government Printing Office, Washington, DC, March, 1975. 3) National Center for Health Statistics: Physician visits, volume and interval since last visit United States, 1975 DHEW publication no (PHS) 79-1556 Series 10, Data from the National Health Survey; no. 128 U S. Government Printing Office, Washington, DC, April, 1979 4) National Center for Health Statistics Physician visits, volume and interval since last visit. United States, 1980 DHHS publication no (DHHS) 83-1572. Series 10, Data from the National Health Survey; no 144 U.S. Government Printing Office, Washington, DC, June, 1983

Table 5

Percent of discharges from short-stay hospitals, according to selected characteristics: United States, 1975 and 1980.

Selected characteristic	Discharges[1]	
	1975	1980
	Percent distribution	
Total [2,3,4]	12.4	12.0
Age		
Under 17 years	6.9	6.2
17-44 years	11.3	10.5
45-64 years	17.5	16.6
65 years and over	25.0	27.7
Sex[2]		
Male	11.7	11.9
Female	13.1	12.1
Race[2,5]		
White	12.4	12.0
Black	12.9	13.0
Family income [2,6]		
Less than $7,000	16.1	15.7
$7,000-$9,999	14.7	14.2
$10,000-$14,999	12.9	12.0
$15,000-$24,999	12.3	11.1
$25,000 or more	10.6	10.2
Geographic area[2]		
Northeast	11.1	10.5
North Central	12.8	12.6
South	13.6	13.9
West	11.7	9.6
Location of residence[2]		
Within SMSA	11.9	11.0
Outside SMSA	13.6	14.1

[1]Excluding deliveries
[2]Age adjusted by the direct method to the 1970 civilian noninstitutionalized population, using 4 age intervals
[3]Includes all other races not shown separately
[4]Includes unknown family income
[5]In 1975, the racial classification of persons in the National Health Interview Survey was determined by interviewer observation. In 1980, race was determined by asking the household respondent
[6]Family income categories for 1980 Adjusting for inflation, corresponding income categories in 1975 were less than $5,000; $5,000-$6,999; $7,000-$9,999; $10,000-$14,999; and $15,000 or more

Table 6

Average length of stay in short-stay hospitals, according to selected characteristics: United States, 1975 and 1980.

(Data are based on household interviews of a sample of the civilian noninstitutionalized population.)

Selected characteristic	Average length of stay[1]	
	1975	1980
	Number of days	
Total [2,3,4]	7.5	7.1
Age		
Under 17 years	5.6	5.2
17-44 years	6.8	6.8
45-64 years	9.7	9.4
65 years and over	12.0	10.0
Sex[2]		
Male	7.9	7.9
Female	7.2	6.5
Race[2,5]		
White	7.2	6.9
Black	9.8	9.2
Family income [2,6]		
Less than $7,000	9.6	8.4
$7,000-$9,999	7.6	8.2
$10,000-$14,999	7.7	6.9
$15,000-$24,999	7.0	6.5
$25,000 or more	6.6	6.0
Geographic area[2]		
Northeast	9.2	7.8
North Central	7.5	7.0
South	7.0	7.1
West	6.2	6.4
Location of residence[2]		
Within SMSA	7.8	7.5
Outside SMSA	6.8	6.7

[1]Excluding deliveries

[2]Age adjusted by the direct method to the 1970 civilian noninstitutionalized population, using 4 age intervals

[3]Includes all other races not shown separately.

[4]Includes unknown family income

[5]In 1975, the racial classification of persons in the National Health Interview Survey was determined by interviewer observation In 1980, race was determined by asking the household respondent

[6]Family income categories for 1980. Adjusting for inflation, corresponding income categories in 1975 were: less than $5,000; $5,000-$6,999, $7,000-$9,999, $10,000-$14,999; and $15,000 or more.

Source: Compiled and abstracted by CHESS from National Center for Health Statistics, Division of Health Interview Statistics: Data from the National Health Interview Survey In Health United States, 1982 DHHS Publication No. (PHS) 83-1232 Hyattsville, MD, 1982.

Table 7

Number of patients discharged from short-stay hospitals, with procedures, by age, sex, and race of patient and geographic region of hospital: United States, 1975 and 1980.
(Discharges from non-Federal short-stay hospitals. Excludes newborn infants.)

Characteristic	All discharged patients		Patients with surgical procedures		% patients with surgical procedures	
	1975	1980	1975	1980	1975	1980
	Number in thousands				Percent	
All patients	34,042	37,832	14,189	17,005	41.7	44.9
Age						
Under 15 years......	3,826	3,672	1,689	1,385	44.2	37.7
15-44 years.........	14,171	15,635	6,557	8,846	46.3	56.6
45-64 years.........	8,391	8,660	3,579	3,575	42.7	41.3
65 years and over ...	7,654	9,864	2,363	3,198	30.9	32.4
Sex						
Male	13,519	15,145	5,401	5,975	40.0	39.4
Female	20,523	22,686	8,787	11,031	42.3	48.6
Race						
White..............	25,715	28,484	10,705	12,828	41.0	45.0
All other	3,798	4,879	1,482	2,105	39.0	43.1
Race not stated	4,529	4,469	2,002	2,072	44.2	46.4
Geographic region						
Northeast	7,351	7,868	3,314	3,677	45.1	46.7
North Central	10,677	10,378	4,494	5,022	42.1	46.2
South..............	10,562	12,983	3,902	5,304	37.0	40.4
West	5,454	6,103	2,479	3,003	45.4	49.2

Source: Compiled and abstracted by CHESS from 1) National Center for Health Statistics: Utilization of short-stay hospitals: annual summary for the United States, 1975. DHEW publication no. (HRA) 77-1782 Series 13, Data from the National Health Survey; no. 31. U.S. Government Printing Office, Washington, DC, April 1977. 2) National Center for Health Statistics: Utilization of short-stay hospitals, annual summary for the United States, 1980. DHHS publication no. (PHS) 82-1725 Series 13, Data from the National Health Survey; no. 64. U.S. Government Printing Office, Washington, DC, March 1982

Table 8

Nursing home and personal care home residents 65 years of age and over and number per 1,000 population, according to sex and race: United States, 1963, 1969, 1973-74 and 1977.

(Data are based on a sample of nursing homes.)

Year and age	Total	Sex		Race		Total	Sex		Race	
		Male	Female	White[1]	All Other		Female	Male	White[1]	All Other
	Number of residents					Number per 1,000 population				
1963										
65 years and over ...	445,600	141,000	304,500	431,700	13,800	25.4	18.1	31.1	26.6	10.3
65-74 years	89,600	35,100	54,500	84,400	5,200	7.9	6.8	8.8	8.1	5.9
75-84 years	207,200	65,200	142,000	202,000	5,300	39.6	29.1	47.5	41.7	13.8
85 years and over	148,700	40,700	108,000	145,400	3,300	148.4	105.6	175.1	157.7	41.8
1969										
65 years and over ..	722,200	207,100	515,200	695,000	27,300	37.1	25.0	46.1	38.8	17.6
65-74 years	138,500	52,200	86,300	129,500	9,000	11.6	9.9	12.9	11.7	9.6
75-84 years	321,800	90,800	231,100	310,900	10,900	51.7	36.0	62.3	54.1	22.9
85 years and over	261,900	64,100	197,800	254,500	7,400	203.2	130.8	247.6	221.9	52.4
1973-74[2]										
65 years and over ...	961,500	265,700	695,800	920,600	40,900	45.1	30.2	55.5	47.3	21.9
65-74 years	163,100	65,100	98,100	150,100	13,000	12.3	11.3	13.1	12.5	10.6
75-84 years	384,900	102,300	282,600	369,700	15,200	59.4	40.8	71.1	61.9	30.1
85 years and over	413,600	98,300	315,300	400,800	12,800	253.7	180.4	290.6	269.0	91.4
1977[3]										
65 years and over ...	1,126,000	294,000	832,000	1,059,900	66,100	47.9	30.7	59.7	49.7	30.4
65-74 years	211,400	80,200	131,200	187,500	23,800	14.5	12.7	15.9	14.2	16.8
75-84 years	464,700	122,100	342,600	443,200	21,500	68.0	47.4	80.6	70.6	38.6
85 years and over	449,900	91,700	358,200	429,100	20,800	216.4	140.0	251.5	229.0	102.0

[1]Includes Hispanics.
[2]Excludes residents in personal care homes.
[3]Includes residents in domiciliary care homes.

Source: National Center for Health Statistics: Characteristics of residents in institutions for the aged and chronically ill, United States, April-June 1963, by G.S. Wunderlich, *Vital and Health Statistics,* Series 12-No. 2. DHEW Pub. No. (PHS) 1000. Public Health Service. U.S. Government Printing Office, Washington, D.C., Sept. 1965; Measures of chronic illness among residents of nursing and personal care homes. United States, by D.K. Ingram, *Vital and Health Statistics,* Series 12-No. 24, DHEW Pub. No (HRA) 74-1709. Health Resources Administration, U.S. Government Printing Office, Washington, D.C., May 1974. Unpublished data from the National Nursing Home Survey, in Health United States, 1982. DHHS Publication No. (PHS) 83-1232, Hyattsville, MD 1982.

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Chapter XI

Financial Expenditures for Health Services

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Chapter XI   Financial Expenditures for Health Services

Overview

This chapter assesses the degree to which access to health care, and thus health status, is affected by the financing of health care services. It explores two aspects of health care financing; (a) the degree to which health insurance coverage differs among racial/ethnic groups; and (b) the degree to which expenditures for health care vary between the groups of concern and the rest of the population.

Personal health care expenditures in the United States for 1960 were $26.9 billion. By 1980, this figure had risen to $249.0 billion, nearly a tenfold increase. Many factors caused this rapid rise in health care expenditures. The three main factors, in order of importance, were: (a) increases in the price of health care services (mainly due to inflation); (b) increases in service intensity and quality; and (c) increases in utilization of health services. Although inflation was the major factor in the rise of health care expenditures, other factors were also at work: technological developments that made health care delivery much more capital intensive (including a number of extremely expensive devices); increases in third-party payments for health care expenses, which resulted in increased utilization; the rise in population; the rise in malpractice costs; and the accompanying increases in the frequency and number of diagnostic tests ordered.

Unless protected by private health insurance coverage and government programs, poor and near

poor individuals are the hardest hit by rising medical costs. Even with existing coverages, nearly all of the individuals with medical expenses above 15 percent of their family income were those who had family incomes below 200 percent of the poverty level.

As health costs escalated, the percentage of health care charges paid out of pocket declined. In 1950, two-thirds of personal health care payments were made by the patient. By 1975, two-thirds of personal health care payments were made by third parties. This expansion of third-party payment has slowed, however, changing from 66.6 percent in 1975 to 67.9 percent in 1981.

Medicaid has gone a long way toward protecting the pocketbooks of the poor and the near poor. Persons with Medicaid had the lowest out-of-pocket expenses in 1980. This was true even though they had the highest mean per capita charges for health care. At the same time, Medicare has been effective in protecting the elderly. Elderly persons with a combination of Medicare and Medicaid (presumably the most needy) had the highest mean per capita total health charge and by far the lowest proportion of total charges paid out of pocket. The total elderly population has health care charges that are triple those of the nonelderly, but their out-of-pocket expenses were less than [twice] as high.

Medicaid is financed jointly by Federal and State funds, but it is administered independently by each State within broad Federal guidelines. The guidelines leave the States with the flex-

ibility to determine such matters as eligibility, duration of coverage, and the methods and levels of reimbursement. As the Medicaid program is expanding and beginning to consume greater proportions of general operating funds of the various States, the States are beginning to devise program changes concerning eligibility, benefits, or reimbursement approaches that will enable them to maintain fiscal stability as expenditures increase.

In 1980, whites had higher mean per capita health care charges and higher out-of-pocket expenses than blacks. Among the elderly, whites spent $342 and blacks spent $186, on the average, for health care services. For the elderly who had Medicaid coverage, out-of-pocket expenditures were $266 for whites and $84 for blacks. Black children less than 6 years of age had exceptionally high Medicaid coverage. Forty-six percent were covered, compared with 20 percent for the total under-6 population, and compared with 14 percent of the black 22-44 age group.

Among Hispanics, 10.4 percent of those 65 and over were covered by Medicaid in 1980, compared with 14.5 percent of the total elderly population. It is difficult to analyze this Hispanic age group's Medicaid statistics further, since they comprise such a small proportion of that ethnic group's numbers (4 percent) and because of their geographic concentration, which places most of them in only a few State-based programs.

One gap in Medicaid coverage, for children, was pointed out by Karen Davis.

While the number of children living in poverty has increased in recent years, the number covered by Medicaid has decreased. Less than 40 percent of children living in poverty are covered. Davis attributes this to the fact that "thirty states do not offer Medicaid to children in intact families, even though their family income is low enough to qualify for welfare aid. Moreover, no state provides coverage for individuals up to the poverty level. In 29 states, the income cutoff limit for Medicaid is less than 50 percent of the federal poverty level."

A. Introduction

Total health care expenditures have been rising rapidly in the United States since 1960. The United States spent $26.9 billion for health care in 1960. By 1980, it spent $249.0 billion, almost a tenfold increase. A 15 percent increase in 1981, to $286.6 billion, brought the figure to over 10 times the 1960 expenses (1) (see Figure 1). During this period, the Gross National Product increased less than sixfold.

Because so many separate factors affect health care costs, the problem of rapidly rising health expenditures is extremely complex. Many factors are changing simultaneously. These changes include (a) the prices charged by health providers, (b) the frequency and types of illness, (c) the continued rise in total population, (d) the sex and age distribution of the population, (e) increases in utilization of health services, (f) technological developments that make expensive equipment available,

(g) increases in the number of diagnostic tests being ordered, (h) increases in third-party payments, (i) governmental attempts at cost containment, and (j) the various responses by the health care providers to such changes.

Inflation has also been a major contributor to increased health care costs, but it has not accounted for all of the rise. Between 1970 and 1979, for example, the Consumer Price Index rose by 87 percent, while the medical care component of that index rose by 100 percent, and the hospital room component of medical care rose by 155 percent (2). Thus health care costs have been outpacing the rise in general consumer prices. Increases in expenditures over time can mean decreased health care services, because all of the factors listed above affect the cost of health care.

In addition, the last three decades have witnessed profound changes in who pays for health care. "In 1950, two-thirds of personal health care payments were made by the patient: by 1980, this proportion had declined to one-third." The share of expenditures for personal health care paid by Federal, State, and local governments rose from 22 to 40 percent between 1965 and 1980 (3. p. 81). Between 1950 and 1966, the growth of private health insurance coverage resulted in a decline of the out-of-pocket portion to just over half of the total personal health care expenditures. Since 1968, with the inauguration of Medicare and (soon after) Medicaid, the major shift has been to public agency payments, with the out-of-pocket share declining to one-third (4, p. 54).

Neither the rise of private health insurance nor

Figure 1
National health expenditures: 1960 to 1981.
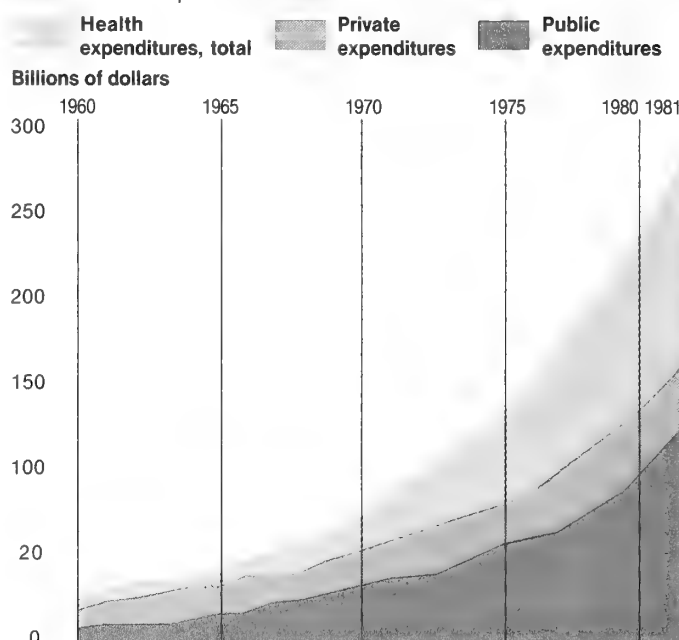
Source: Chart prepared by U.S. Bureau of the Census. *In* U.S. Bureau of the Census, *Statistical Abstract of the United States:* 1982–83 (103d edition) Figure 4:1, p. 98. Washington, DC, 1982. Data Table Source: U.S. Health Care Financing Administration, *Health Care Financing Review,* September, 1982. *In* U.S. Bureau of the Census, *Statistical Abstract of the United States:* 1982–83 (103d edition.) No. 149, p.101. Washington, DC, 1982.

Medicare and Medicaid slow the rise in total health care expenditures nor were they intended to. Private health insurance merely spreads the risk of larger health expenditures, and thus protects the individual family from the financial burden of sudden illness. If anything, it adds a small amount to the total health care expenditures (to cover administrative costs). Medicare and Medicaid were intended to enhance access to health care for the medically underserved segments of the population. Thus, to the extent that this aim is achieved, more persons are being served, and expenditures continue to rise. Furthermore, as Weichert wrote: "The presence of third-party payment tends to blur the relationship between the amount and type of health care services consumed and their costs. In other words, the out-of-pocket cost of health care to

the consumer, at the time of services, is reduced or eliminated— encouraging both provider and consumer to increase utilization, demand higher quality care, and thereby generate higher costs." (3, p. 81)

Advances in medical technology have greatly altered the character of the health care product over the past few decades, but their effect on expenditures has been mixed. Each new technological innovation has its costs and benefits. If a new procedure, device, or vaccine can reduce the prevalence of some medical condition, the cost of its development and administration could outweigh any saving derived from reduced incidence. If it prolongs life, the new effect could be an increase, rather than a reduction, in the frequency or

duration of medical treatment. Organ transplant is an example of such a procedure. Renal dialysis is another. New, expensive diagnostic aids prompt interhospital competition to have the most modern facilities, even if those diagnostic aids are underutilized.

The various direct attempts at medical cost containment have had only limited success thus far. They have been successful enough, however, to encourage other agencies to try to improve upon them. Some of the cost containment strategies that have been applied are:

■ Second opinion and prior approval programs.
■ Comprehensive regional planning to reduce duplication of facilities.
■ Need review programs to control hospital capital expansion.
■ Economic incentives to induce more efficient use of resources.
■ Health maintenance organizations to replace the traditional fee-for-service arrangement of health care delivery.

The number of health maintenance organizations (HMO's) grew slowly until 1970 and more rapidly since February 1971, when President Nixon advocated HMO's in a message to Congress. Between 1929 and 1970, their number rose from 1 to 30, with 3.1 million enrollees. By 1980, there were about 235 prepaid plans, with an estimated 9.5 million enrollees. Despite this growth, HMO's still have a great potential for continued expansion. In 1980, 2.2 percent of those eligible for Medicare, and 1.5 percent of those eligible for Medicaid, were enrolled in HMO's. The 1976 amendments to the 1973 HMO act permitted,

with limited exceptions, only qualified HMO's to contract with States to provide appropriate health services. This action has reduced the incidence of fraud, improper marketing and enrollment practices, and inadequate care provided by HMO's (5).

A recent Vanderbilt University study (funded by the National Center for Health Services Research) claims that mandatory rate-setting is the most effective regulatory program for containing hospital costs. In the six States that have adopted this measure so far, hospital costs per day were an average of 16 percent lower than hospital costs elsewhere, and costs per admission were 10 percent less. These results were achieved by reducing payments to hospitals per day and per case, not by curbing admissions or length of stay (6). Cost curtailment efforts such as this are important to the disadvantaged because of their utilization patterns (i.e., the disadvantaged have a higher frequency of use of health care services, and their out-of-pocket health expenses are a greater proportion of their family income).

In view of the high cost of receiving health care in the United States, the financial impact of health care on segments of the population, particularly the disadvantaged, may be excessive. To explore this further, we must examine the answers to the following questions:

1. How do the per capita personal health care expenditures of the disadvantaged compare with those of the rest of the population?

2. What proportion of the health care dollar goes toward hospital care,

physician care, etc., for the disadvantaged compared with the rest of the population?

3. How do health insurance coverage and the out-of-pocket costs of the disadvantaged compare with those of the rest of the population?

4. How has public health spending reduced those financial barriers to health care experienced by the disadvantaged?

As with problems analyzed in the other chapters of this book, caution must be used in interpreting any differentials that are found. Differentials may mean that there are differences in need, consumption practices, access, geographic population distributions, uses of insurance coverages, age distributions, or the types of services received. Where possible, available data from all sources will be used to determine which of these is the case.

Additional caveats on the interpretation of the data presented are contained in Chapter I of this book.

B. Health Insurance Coverage

The proportion of personal health care expenditures covered by insurance has increased over time. In 1950, two-thirds of personal health care expenditures were paid by the individual recipients of the health care (3). By 1975, two-thirds of personal health care expenditures were being paid by third parties. Gradual growth since 1975 raised the proportion to 67.9 percent by 1981 (see Table 1).

In 1980, 13.4 percent of all persons and 12.8 percent of all families were known to have no health insurance (7). (These figures applied to the civilian noninstitutionalized population.) In 1977, 79.4 percent of the civilian

noninstitutionalized population were privately insured at least some time during the year. A substantial difference existed between whites on the one hand, and blacks and Hispanics on the other hand, in the proportion covered by private insurance (85 percent compared to roughly 60 percent). Among groups defined by income, only 41 percent of persons in the poor or near-poor families (1.25 poverty line or less) were privately insured, compared with 87 percent of individuals from middle income families (8).

Government expenditures for personal health care rose from $5.5 billion in 1960 to $102.9 billion in 1981, mainly due to the introduction of Medicare and Medicaid to protect the undercovered and underserved segments of the population. By 1981, 26.2 million individuals were covered by Medicare, and 19.0 million were covered by Medicaid, with 3.5 million covered by both. Medicare covered 23.5 million individuals aged 65 and over, and Medicaid covered 16.0 million individuals below the age of 65. During 1980, Medicare covered 15.5 percent of the white population, 12.9 percent of the black population, and 7.2 percent of the Hispanic population. Of course, these percentages must be viewed in light of the proportions of the aged in each of the racial/ethnic groups (see Chapter II). Medicare covered 95.4 percent of the population aged 65 and over. During 1980, Medicaid covered 6.2 percent of the white population, 24.2 percent of the black population, and 16.2 percent of the Hispanic population. These percentages must be interpreted in light of the proportions of poor and near

poor in each of the racial/ethnic groups (see Chapter II). Overall, Medicaid covered 39.1 percent of the population below the poverty line and 4.0 percent of the population above the poverty line (9).

Below the poverty line, a significantly smaller percentage (30.9) of the white population was covered by Medicaid than any other racial/ethnic group. Of the black poor, 65.1 percent were covered, and of the Hispanic poor, 46.6 percent were covered by Medicaid in 1980. Among the near poor (101-150 percent of poverty line), 14.7 percent of whites, 25.1 percent of blacks, and 28.8 percent of Hispanics had Medicaid coverage in 1980 (10).

An interesting racial/ethnic difference in Medicaid enrollment was reported by O'Brien, Rodgers, and Baugh (10). They showed that 10.4 percent of Hispanics who were 66 and over had Medicaid coverage in 1980, compared with 14.5 percent for the total aged population, and compared with 18.1 percent of the Hispanic 22 to 44 age group. The black age group with the highest percentage of Medicaid coverage was the 6 to 21 group. Forty-six percent of blacks in this age group were covered by Medicaid, compared with 32.7 percent for the total population, and compared with 15.9 percent of the black 22 to 44 age group (see Table 2).

C. Out-of-Pocket Expenses

For the individual health care recipient, the total amount spent on health care is not as important as the amount that comes out of his or her pocket. Those health care costs paid directly by the

consumer for health services for insurance premiums are referred to as out-of-pocket expenses. The data on out-of-pocket expenses have been derived from an analysis of the National Medical Care Utilization and Expenditure Survey (11).

The mean per capita out-of-pocket expenses for all noninstitutionalized persons in the United States in 1980 were $195. This represented 27 percent of total charges ($730). The elderly (65 and over) had charges that were nearly three times as high as the nonelderly ($604 versus $160), but their out-of-pocket expenses were less than twice as high ($327 versus $179). Thus, even though insurance costs are included in out-of-pocket expenses, the elderly were paying 18.5 percent of their medical care cost. Figure 2 shows the out-of-pocket expenses of the elderly at different poverty levels. It is interesting to note that the elderly near-poor who were between 151 and 200 percent of the poverty level paid more out-of-pocket medical expenses ($391.85) than any other poverty level grouping. Table 3 shows that, although the mean per capita total charges were greatest for the elderly whose income was between 56 and 75 percent of the poverty level ($2449.94), the elderly in the lowest poverty level (10-55 percent) paid the greatest proportion of the total charges out of their own pockets (24 percent). For the sake of equity, attention apparently needs to be focused on these two poverty levels (10-55 percent and 151-200 percent of poverty level).

There are large differences in out-of-pocket expenses between racial and
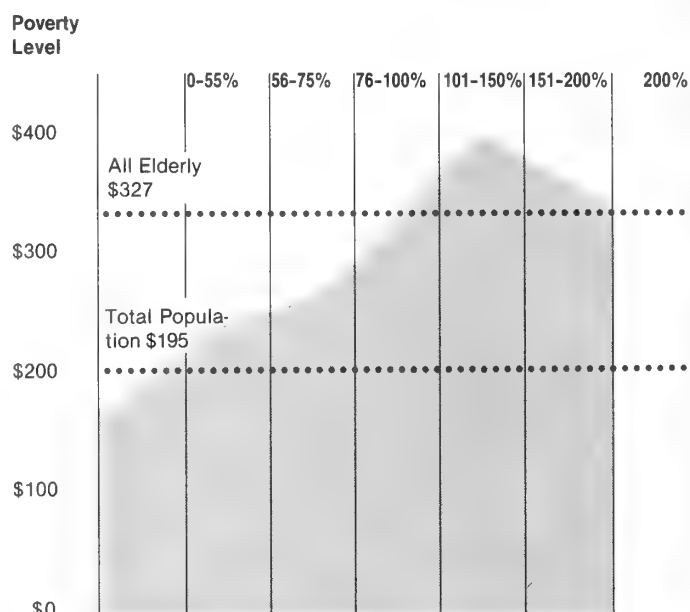
Source: Unpublished draft, Deliverable. No. 305F, Health Care Financing Administration, February 28, 1983. Howell, E., Corder, L., and Dobson, A.: Out-of-Pocket health expenses for Medicaid and other poor and near poor persons in 1980.

ethnic groups. Whites had higher medical charges than blacks in 1980 ($755 versus $570) and paid a slightly higher percentage of those charges out of their own pockets (27 percent versus 23 percent) (see Table 4). Non-Hispanics had higher medical charges than Hispanics in 1980 ($745 versus $518) and their out-of-pocket expenses were also higher ($199 versus $150), but the percentage of charges paid out of pocket was about the same (27 percent versus 29 percent).

Caution must be exercised in interpreting Hispanic Medicaid data. Medicaid eligibility requirements and benefits are based on State programs. Because of the limited geographic spread of Hispanics, this factor imparts particularly strong biases to these Medicaid data. One-third of all Hispanics live in one State (California); one-half live in two States (Califor-

nia and Texas); two-thirds live in three States (California, Texas, and New York); and almost three-fourths live in four States (California, Texas, New York, and Florida).

The higher charges and out-of-pocket expenses of the nonminority population were attributed to several factors by Howell, Corder, and Dooson (12). Nonminority people have higher utilization rates; they use more expensive health care providers; they use a different mix of services (for example, as noted in Chapter VIII, they use dental services much more often); and they have a high proportion of individuals in the age groups at or above 65.

The mean per capita out-of-pocket expenses for all persons in 1977, as reported in the National Medical Care Expenditures Survey (NMCES) with analagous data for 1980 from the National Medical Care Utilization and Expenditure Survey (NMCUES), rose by 20 per-

cent (from $163 to $195) while per capita health care expenditures were rising by 70 percent. The above analysis refers to out-of-pocket expenses for all persons, including those who had no expense. Thus, it represents a measurement based on a population statistic. Another way of calculating out-of-pocket expenses is to include only those persons who had any expense. By doing so, an average expense for those persons can be arrived at. The NMCES mean out-of-pocket expense per person with expense was $215, compared with the NMCUES figure of $246, a 14 percent rise in 3 years (12).

D. Federal Health Expenditures—The Aged

In 1980, the average per capital health expenditures were 3.5 times greater for persons over 65 years of age than for those under 65 (13, pp. 158-159), even though they constituted only 15.4 percent of the population. Thus this is the age group for whom Federal health insurance for the disadvantaged is a must. "Title XVIII of the 1965 Social Security Amendments (P.L. 89-97), authorized a federal program of health insurance for the aged known as Medicare. The explicit goal of Medicare was to reduce the financial barrier to access to health care for those age 65 and over, aiding them in reaching needed services." (14, p. 274) "Since 1966, the private portion of health-care over-costs met by out-of-pocket payments, private health insurance, philanthropy, and industry has been cut in half: from 70 percent in 1966 to 34 percent in 1972 (15). Out-of-pocket payments made by the elder-

ly declined sharply as a proportion of their personal, health-care costs, from 53.2 percent in 1966 to 26.4 percent in 1968 and a low of 25.5 by 1969." (16, pp. 155-156)

Has Medicare been effective in reducing the financial impact·of health care on the poor and racial minorities who are aged? From available data which relate reimbursement to race, it appears that racial minorities received both lower and fewer Medicare reimbursements for physician services than whites in 1976 (see Figure 3).Of all Medicare enrollees with claims, the average reimbursement to whites for physician services was $299, compared with $263 for nonwhites (14 percent higher). Considering the total number of enrollees, both those who used and those who did not use the services, the average reimbursement for whites was 32 percent higher than for nonwhites ($165.48 versus $125.36). Also, whites tended to use Medicare reimbursable physician services 16 percent more often than nonwhites (553 per 1,000 versus 476 per 1,000).

Although physician care and utilization favored whites in 1976, inpatient hospital care presented a different pattern (see Figure 4). Although whites again used the Medicare reimbursable services more (by 19 percent), nonwhites received a 14 percent higher reimbursement per person served ($2,379 for nonwhites and $2,085 for whites). The lower reimbursement rate of whites among those served is probably explained by a shorter average length of hospital stay. As for reimbursement per person enrolled, the ratio

Figure 3

Medicare reimbursement for physician services, by race, 1976.
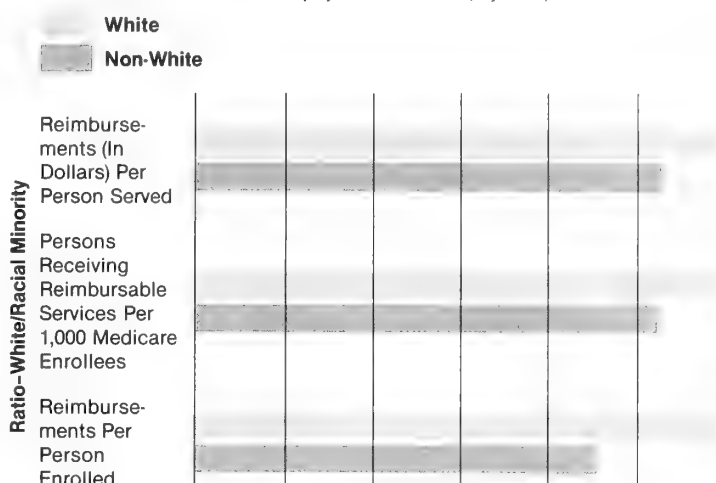
Source: "Equal Treatment and Unequal Benefits: A Re-examination of the Use of Medicare Services by Race, 1967–1976," Ruther, M. and Dobson, A. *In Health Care Financing Review*, Winter, 1981.

Figure 4

Medicare reimbursements for inpatient services, by race, 1976.
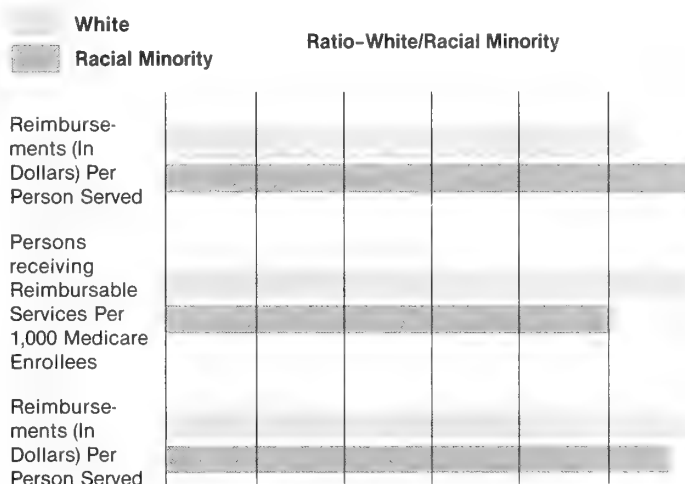
Source: "Equal Treatment and Unequal Benefits: A Re-examination of the Use of Medicare Services by Race, 1967–1976," Ruther, M. and Dobson, A. *In Health Care Financing Review*, Winter, 1981.

of white to nonwhite expenditures was below 1.05.

Medicare reimbursements to racial minorities for hospital outpatient services strongly favored non-whites in 1976 (see Figure 5). Nonwhites used the Medicare reimbursable outpatient services 16 percent more often than whites (255 versus 194 per 1,000). They received 51 percent more reimbursement per person served ($169 versus

$112, and 75 percent more reimbursement per person enrolled in Medicare ($37.96 versus $21.65). The higher outpatient charges for nonwhites (per person served and per person enrolled) suggest that a different mixture or intensity of services is utilized by the two groups. If the higher out-patient charges to racial minorities

mean more services per visit, then the racial differentials in outpatient department utilization follow those in inpatient utilization. That is, racial minorities may receive more services per visit to outpatient departments, just as they have more days per inpatient hospital stay compared to whites.

Although it is interesting to examine racial/ethnic differences in expenditures for a given year, it is more important to examine trends in racial/ethnic expenditures. One of the better single measures of equity in the use of Medicare benefits is reimbursement per enrollee, although using this measure in a comparative sense requires an assumption that a number of characteristics of the groups being compared are similar. This measure represents the average Medicare reimbursement paid to the population at risk. Ruther, Martin, and Dobson (17) have presented data (see Figure 6 and Table 5) that show strong improvement in the equity of Medicare reimbursement per enrollee between 1967 and 1976. While this figure was rising by 306 percent for whites, it was rising by 425 percent for nonwhites. The ratio of white to nonwhite reimbursements per enrollee decreased from 1.53 in 1967 to 1.10 in 1976. Thus, although equality was not achieved by 1976, it was being approached. An extrapolation of the trend shows that it is possible (but doubtful) that equity has been achieved in 1984.

Reimbursement per person served shows a different trend (see Figure 7 and Table 5). When considering all Medicare services together, the ratio of whites

to non-whites for this statistic dropped gradually to 1.02 between 1967 and 1971, further dropped to 0.97 by 1974, and remained at this level for another 2 years. Thus it appears that racial/ethnic equity has been achieved on this dimension. However, it should be pointed out that the various component services of Medicare present different pictures as to equality. The ratio of white to nonwhite reimbursement per person served has been at or below 1.00 since 1969 for every service except physician care. Reimbursement per person served for physicians' services has persistently shown higher average reimbursements for whites in the 1967-1976 period, and has exhibited a slow and irregular decline (17) (see Figure 8).

Most of the Medicare data in this section came from an article by Ruther, Martin, and Dobson (17). The tentative conclusions stated in that article are very interesting. A few of the highlights are presented here:

The Medicare program was partially responsible for the decreasing disparity by race among the aged for three reasons. First, the program increased access to medical care among aged persons by providing "free" hospital insurance for those entitled to social security. The program also offered voluntary supplementary medical insurance (SMI) to the aged and Medicare shared the cost of the SMI premium. Many of those unable to afford the SMI premium obtained free coverage through the State buy-in program. Second, Medicare reduced out-of-pocket medical costs by paying 80 percent of SMI
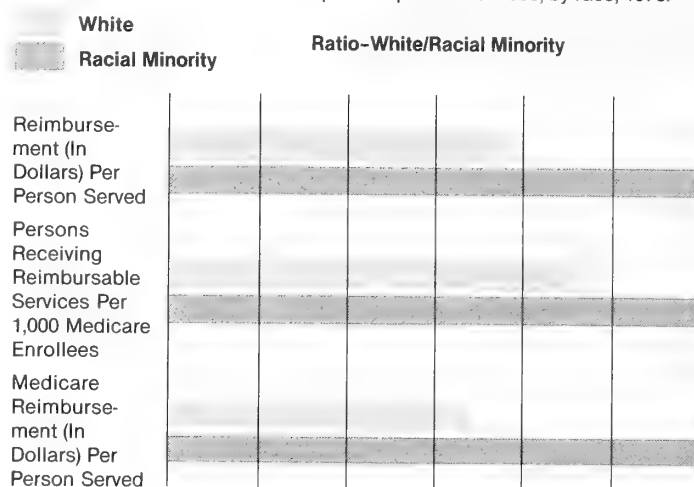
Figure 6
Use of all services by the aged, reimbursement per enrollee: ratio of white to non-white, 1967–1976.
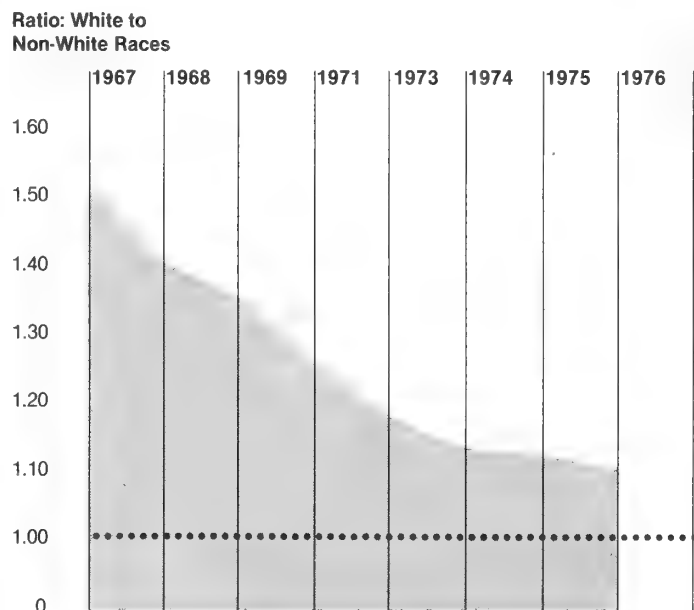
reasonable charges and a substantial part of HI (hospital Insurance) charges. Further, Medicaid eligibles entitled to Medicare do not have to pay their Medicare coinsurance and deductibles—these are paid by Medicaid. Third, institutional providers of medical care to Medicare enrollees are required to furnish services without discrimination. These three factors probably increased the use of medical care by Nonwhites more than by whites. The reason for this is: Nonwhites benefited more because a lower proportion of them probably had private health insurance than whites. The State buy-in program and probably the Medicaid program has disproportionate numbers of Nonwhite eligibles (17, p. 76).

The authors go on to discuss factors other than Medicare that may have acted to decrease racial disparity, as well as factors that may act to perpetuate or increase disparity. Among the former class of factors, they list the civil rights movement, increased receptivity to medical care among nonwhites, and a greater rate of acceleration in income among the nonwhite aged. Factors that may tend to increase white expenditures are the following:

■ Because the white aged have higher incomes, they are more likely to be able to afford private insurance to supplement Medicare. Therefore, their total health care expenditures may be greater.

■ Because greater proportions of whites live in regions where prices and costs are higher, they are more likely to exceed the deductible of the SMI program of Medicare and to receive reimbursement.

In addition to racial disparities, marked disparities in Medicare reimbursements among income groups were observed. Data on Medicare supplementary medical insurance services, which include physician services, hospital outpatient services, and home health services, are presented by income in Table 5. In 1968, medical

reimbursements per person enrolled in the highest group were $160, twice the amount paid to the lowest income group ($76).

High income persons appeared to reap greater benefits from Medicare for most reimbursement measures in 1968. First, the number of highest income persons who received reimbursable services per 1,000 Medicare enrollees (552.3) was 26 percent higher than the number of lowest income persons, 438.2. Second, the amount of Medicare reimbursement per services was higher for high income persons, $10.40, compared with low income persons, $6.06. Third, Medicare reimbursements per enrolled person were twice as high for the highest income group than for the lowest income group: $160 compared with $76.

E. Federal and State Health Expenditures— The Poor

In 1965, PL 89-97 was enacted incorporating Title XIX as an amendment of the Social Security Act. This Title created a program for financial aid to the poor that was to be jointly funded and administered by the Federal Government and those States that adopted the program. Popularly dubbed Medicaid, the program had as its aim the achievement of a higher level or equity in access to health care services through financial support. But sometimes there are discrepancies between program intents and achievements. Has Medicaid been effective in reducing the financial impact of health care expenditures among the disadvantaged? The discussion in this section draws on data pertaining only to persons enrolled in the program, and therefore identifies only en-

Figure 7

Use of all services by the aged, reimbursement per person served: ratio of white to nonwhite, 1967–1976.

Ratio: White to Non-White Races
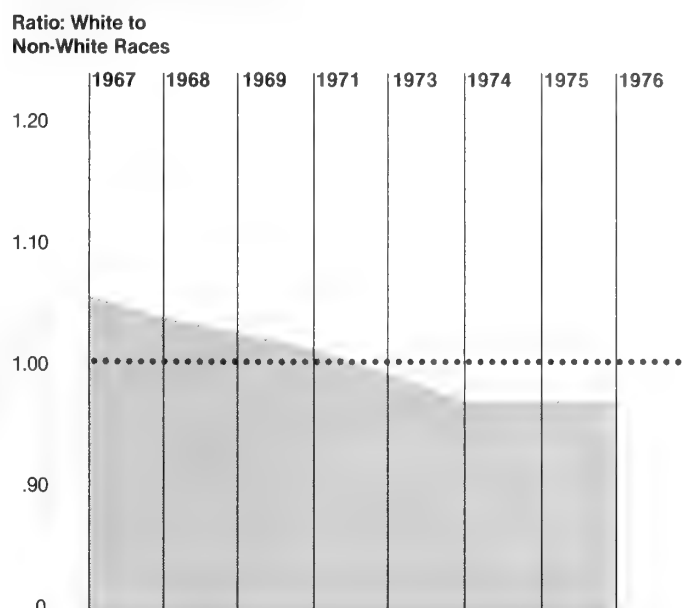
Source: "Equal Treatment and Unequal Benefits: A Re-examination of the Use of Medicare Services by Race, 1967–1976," Ruther, M. and Dobson, A. *In Health Care Financing Review,* Winter, 1981.

Figure 8

Physician and other medical services under Medicare, reimbursement per person served: ratio of white to nonwhite, 1967–1976.
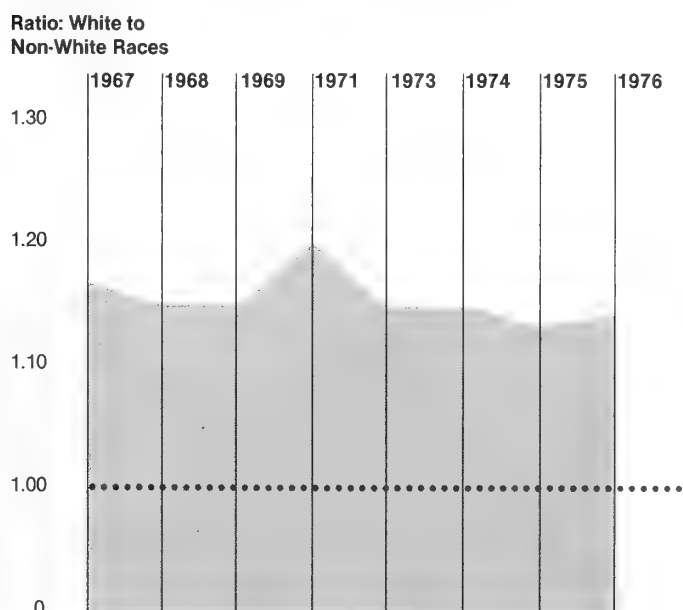
Ratio: White to Non-White Races

Source: "Equal Treatment and Unequal Benefits: A Re-examination of the Use of Medicare Services by Race, 1967–1976," Ruther, M. and Dobson, A. *In Health Care Financing Review,* Winter, 1981.

dogenous inequities. Quick mention is made, however, of exogenous inequities which stem directly from the program. For instance, there are inequities associated with eligibility for Medicaid.

In 1980 there were 193.2 million individuals not covered by Medicaid for any portion of the year. Of these uncovered individuals, 28.2 percent had family incomes between 0 and 200 percent of the official poverty level. This amounts to 54.5 million needy persons who are not covered. Some of these people may either not fall into a category appropriate for Medicaid eligibility (aged, blind, disabled, or members of families with dependent children) or have incomes above the income levels for Medicaid eligibility. Twenty-nine states have a Medicaid cutoff limit that is less than 50 percent of the Federal poverty level. Some of the needy may be in States without programs for the medically needy, or have expenses that are large, but not sufficient to reduce income to the medically needy level (18).

"In any case, almost all persons in the United States who experience 'catastrophic' out-of-pocket health expenses above 15 percent of family income have incomes below 200 percent of the official poverty level. Some of these do ultimately receive Medicaid coverage after spending a relatively high proportion of income on health expenses" (18, p. 48). Actually, 30.7 percent of the persons who paid more than 15 percent of family income for health care were in the lowest poverty level grouping (0-55 percent). For the entire needy group (0 to 100 percent of poverty level group), the proportion of those pay-

ing more than 15 percent of family income for health care was less than 1 percent.

Table 6 again makes the point that many poor people are not covered by Medicaid. Although in 1980 13 percent of the U.S. population lived in families with incomes below the poverty line, Medicaid coverage was provided to only 9.7 percent of the population. The situation was actually worse than this comparison shows, since over 41 percent of the persons with Medicaid coverage lived in families with incomes above the poverty line (19).

The racial/ethnic data in Table 2 suggests that black poor are more completely covered by Medicaid than are white poor. However, judgments about equity must take into consideration any differences in the health of black poor versus white poor.

F. Federal and State Health Expenditures— The Young

As noted elsewhere in this book, two segments of the age distribution of our population are particularly at risk with respect to morbidity: the young and the aged. The aged have been discussed previously in the context of both the Medicare and the Medicaid programs. The young have potential access only to the Medicaid program.

In 1983, the noted health economist Karen Davis told a congressional subcommittee that Medicaid coverage for children is declining at a time when the number of children living in poverty is increasing. While the percentage of U.S. children living in poverty increased from 15 to 20 per-

cent, the Medicaid coverage significantly decreased. "In 1979, 10.5 million poor children were covered by Medicaid. Two years later (in 1980), that number has shrunk to 9 million children. The 1982 numbers show a drop to 8 million. Nearly 6 million children in families with incomes below the poverty level are without Medicaid coverage. Less than 40 percent of children in poverty are covered by Medicaid. Of these uninsured poor children, two million live in families with incomes below 50 percent of the poverty level." (20).

Davis explained that this is because, "Currently, 30 states do not offer Medicaid coverage to children in intact families, even though their family income is low enough to qualify for welfare aid. Moreover, no state provides coverage for individuals up to the poverty level. In 29 states, the income cutoff limit for Medicaid is less than 50 percent of the federal poverty level" (20). She urged passage of a Federal bill to upgrade the coverage of children and poor pregnant women.

Table 1

Percent of total health care expenditures covered by third party payments. 1960 to 1981

1960	1965	1970	1975	1977	1978	1979	1980	1981
45.1	48.2	60.1	66.6	67.2	67.5	67.3	67.1	67.9

Source: U.S. Bureau of the Census, *Statistical Abstract of the United States* 1982-83 (103d edition) Washington, DC 1982

Table 2

Number of Medicaid enrollees and percent distribution of sociodemographic characteristics by ethnicity and race: United States, 1980.

Sociodemographic characteristics	Total persons	Percent of total	Ethnicity and Race			
			Hispanic	Non-Hispanic		
				White	Black	Other
Total Medicaid	21,209.9	100.0	2,625.1	11,006.0	6,942.1	636.8
Age						
Under 6 years	3,833.7	18.1	24.0	15.4	19.7	22.8
6-21 years	8,392.8	39.6	39.4	35.4	46.3	38.6
22-44 years	3,912.6	18.5	16.1	20.8	15.9	14.4
45-64 years	1,995.9	9.4	10.1	9.3	9.1	11.7
65 and over	3,074.9	14.5	10.4	19.1	9.0	12.5
Sex						
Male	8,435.0	39.8	39.3	41.9	35.8	47.9
Female	12,774.9	60.2	60.7	58.1	64.2	52.1
Marital Status						
Under 17 years	10,115.4	47.7	55.3	41.8	53.8	50.7
Married	2,913.5	13.7	15.0	16.9	7.1	27.3
Widowed	2,048.3	9.7	6.8	11.3	8.6	4.8
Separated	1,029.0	4.9	6.3	4.7	4.8	2.1
Divorced	1,654.7	7.8	4.7	9.9	6.0	3.9
Never married	3,381.5	15.9	11.9	14.9	19.6	11.3
Unknown	67.6	0.3	0.0	0.6	0.0	0.0
Poverty Level						
0-100%	11,052.1	52.1	38.2	45.2	68.8	47.1
101-150%	3,914.8	18.5	28.6	20.9	11.7	9.3
Greater than 150%	6,243.0	29.4	33.2	33.9	19.5	43.6

Note: Numbers of persons are expressed as person years
Source: Unpublished draft for the Health Care Financing Administration, September 30, 1983. O'Brien, M D , Rodgers, J., and
Baugh, D.: Ethnic and racial patterns in enrollment, health status, and health services utilization in the Medicaid population

Table 3

Mean per capita total charges and mean per capita out-of-pocket expenses of the elderly, by poverty level, 1980.

Poverty Level	Mean Total Charges	Mean Out-of-Pocket Expenses	Percentage
0-55%	752.48	181.66	24
56-75%	2499.94	243.09	10
76-100%	1928.73	260.63	14
101-150%	1657.73	319.13	19
151-200%	1824.53	391.85	21
200%	1757.25	345.68	20

Source: Unpublished draft, Deliverable No. 305F, Health Care Financing Administration, February 28, 1983. Howell, E., Corder, L., and Dobson, A.: Out-of-pocket health expenses for Medicaid and other poor and near poor persons in 1980

Table 4

Mean per capita total charges and mean per capita out-of-pocket expenses of racial/ethnic groups, elderly and nonelderly, 1980.

Racial/Ethnic Group	Mean Total Charges	Mean Out-of-Pocket Expenses	Percentage
Age Under 65			
White	619.07	186.51	30
Black	502.61	124.77	25
Non-Hispanic	613.91	181.55	30
Hispanic	470.29	149.90	32
Age 65 and Over			
White	1800.44	341.99	19
Black	1354.47	188.36	14
Non-Hispanic	1762.61	331.64	19
Hispanic	1642.44	145.83	9
Total Persons			
White	754.52	204.34	27
Black	569.78	129.78	23
Non-Hispanic	745.27	198.71	27
Hispanic	517.88	149.74	29

Source: Unpublished draft, Deliverable No. 305F, Health Care Financing Administration, February 28, 1983 Howell, E., Corder, L., and Dobson, A. Out-of-pocket health expenses for Medicaid and other poor and near poor persons in 1980

Table 5

Medicare reimbursements for covered services under the supplementary medical insurance program and persons served, by income, 1968.[1]

		Supplementary medical insurance services					
	Total	Under $2,000	$2,000-4,999	$5,000-9,999	$10,000-14,999	$15,000 and over	Ratio, highest income to lowest income
Persons receiving reimbursable services per 100 Medicare enrollees	460.1	438.2	425.9	475.0	527.2	522.3	1.26
Number of reimbursable services per person receiving reimbursable services	26.6	28.7	23.4	26.6	27.5	27.9	.97
Medicare reimbursement per reimbursable service	$7.27	$6.06	$8.11	$8.21	$7.95	$10.40	1.72
Medicare reimbursement per person enrolled	$88.60	$76.32	$80.95	$103.87	$115.10	$160.30	2.10

[1]Including unknown income.
Source: 1) U.S. Department of Health, Education and Welfare, Social Security Administration, Office of Research and Statistics. (Calculated from unpublished tabulations from the 1968 Current Medical Survey.) 2) *Financing Medical Care: Implications for Access to Primary Care: Where Medicine Fails*, Amdreopoulas, S. (ed.). John Wiley and Sons, New York, 1974

Table 6

Percent of racial/ethnic groups covered by Medicaid compared with percent of racial/ethnic poor, 1980.

Racial/Ethnic Group	Percent of Group Covered by Medicaid	Percent of Group Below Poverty Level
White	6.3	10.2
Black	27.6	32.5
Hispanic	17.9	25.3
Total U.S.	9.7	13.0

Source: Compiled and abstracted by CHESS from 1) Unpublished draft, Deliverable No. 305F, Health Care Financing Administration, September 30, 1983. O'Brien, M. K., Rodgers, J., and Baugh, D.: Ethnic and racial patterns in enrollment, health status, and health services utilization in the Medicaid population. 2) U.S. Bureau of the Census, *Statistical Abstract of the United States:* 1982-83 (103d edition). Washington, DC, 1982.

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